

AN URBAN INFILL:
A residual site in Boston

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Submitted to the Department of Architecture on January 12, 1996 in partial fulfillment of the requirements for the degree of Master of Architecture.

ABSTRACT

This thesis is concerned with the treatment of residual sites in the context of the urban environment and in particular with the wounds inflicted by the passage of the Massachusetts Turnpike through the city of Boston. The Pike, crossing the city from east to west at a level which is approximately twenty feet below the established city datum, has resulted in deep perforations of the city skin and it has caused discontinuity in the urban fabric. The result is the formation of "leftover" sites in the city which are devoid of life.

The proposed solution involves the study of a possible way to span the highway passing underneath and to integrate this residual site with the surrounding community. This results into two distinct structural systems: one which anchors itself along the dividers of the Turnpike and of the railway lines and one which sits on firm ground. The design calls attention to this twofold structural issue, but also tries to resolve the two systems into an integrated building. The consequent treatment of the block, is the connection and formation of public pathways and plazas, within the surrounding context and the proposed development.

Thesis Supervisor:
Title:

Imre Halasz
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1 HISTORICAL BACKGROUND

You can tell a lot about a city or neighborhood just by looking; something of its history, when it was built, for whom, what physical, social and economic changes have taken place, who lives there now, major issues and problems that may exist, and whether the area is vulnerable to rapid changes. Field observation should be an important, systematic, diagnostic tool for professionals and others who design and plan urban environments, as important as other research methods.¹

1.1 Boston

In the Boston of 1877, an amalgam of irregular and rectilinear development is visible in John Bochmann's expansive town portrait. (1) The meandering street network of the historic core around the domed State House recalls the shape of the land and its country roads, the city's earliest form givers. In the southwest is the grided development of the South End, a district built on landfill in the 19th century. The start of an irregular city plan is often due to a small number of topographic peculiarities. In the case of Boston, for instance, these were the Shawmut peninsula (2) with its eastern coves and the narrow Neck to the south.² There is nothing instinctive about the process of converting such peculiarities to an urban fabric. While some landscape features may be embraced and exploited, others may be rejected. The three-humped high ridge that rose through the center of the peninsula had little direct consequence for the early form of Boston.

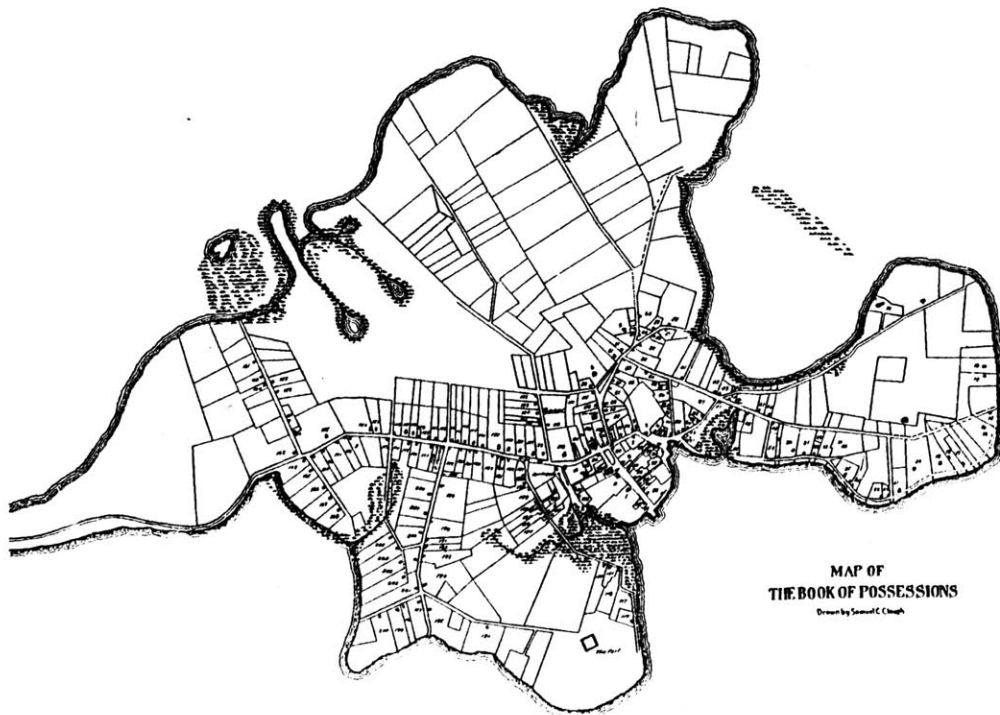
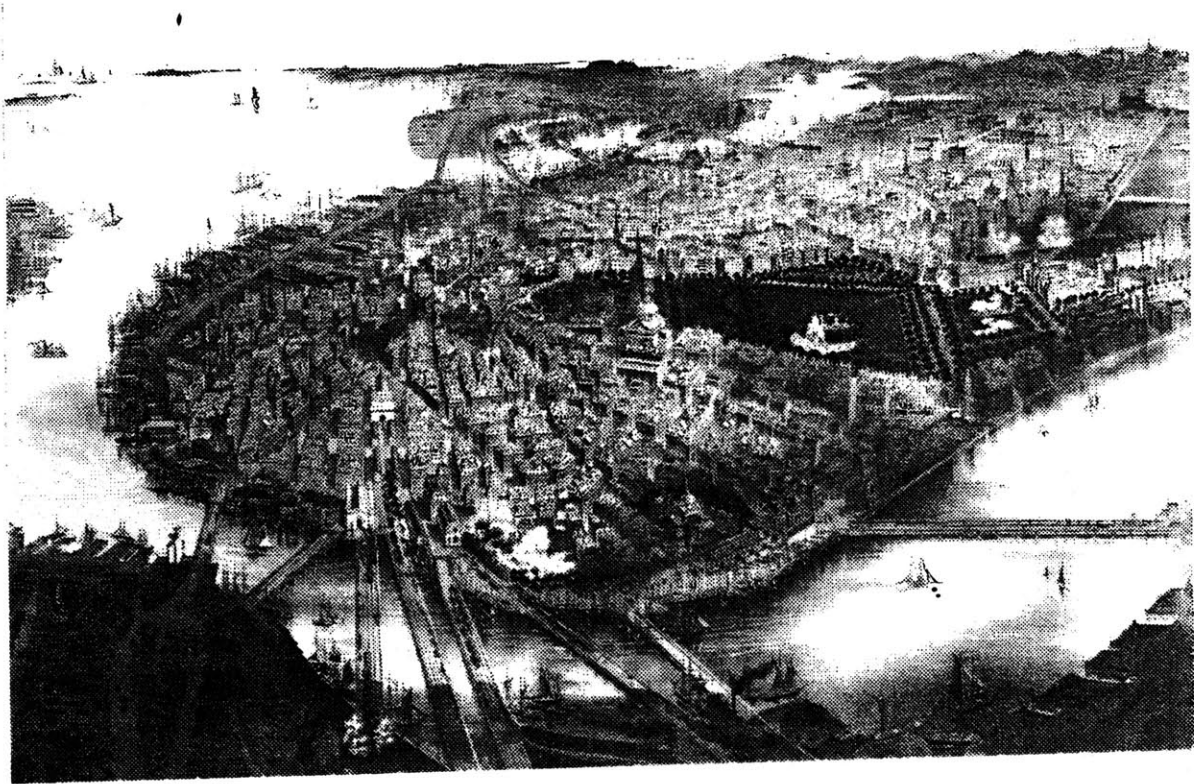
With the passage of time, the National Land Ordinance ensured that the urban blueprint for most of the United States would be the grid. For a century or so, until the borders

¹ "Places", Vol.1, No.4, p. 28

² "The City Shaped, p. 55

fig. 1 - John Bochmann's town portrait of Boston, 1877.

fig. 2 - Boston in the 1640's



were finally closed, grided towns almost unexceptionally dotted the breadth and length of the continent between the old Colonial band of the Eastern Seaboard and the Pacific Ocean.³ The grid became the standard for new sections of old towns as well. Boston with its more recently developed districts of the Back Bay and the South End was no exception to this rule. (3)

1.2 The railroad comes to town

During the 1830's, the railroads brought about major changes in the topography of Boston. The Boston-Worcester and Boston-Providence lines opened for travel in the summer of 1835.⁴ None of the northern lines' railroads, affected the character and future development of the city as did the southern and western lines that crossed the Back Bay on their approach to Boston. The Boston and Worcester Railroad incorporated in 1834, entered Boston from the west though the Back Bay on today's Boston and Albany line. The Boston and Providence Railroad, incorporated in 1831 and opened in 1835, came through Roxbury and cut diagonally (southwest to northeast) across the receiving basin to a station in Park Square.⁵ The Worcester and Providence tracks, which intersected in mid-bay (near the present Back Bay Station) formed a great St. Andrew's cross (4) of railway lines through the Back Bay which not only jeopardized the flowage of water for existing mill purposes but led eventually to the filling of the entire area. Moreover, the routes followed by these railway lines have physically affected the street planes of the South End and Back Bay districts as we know them today.

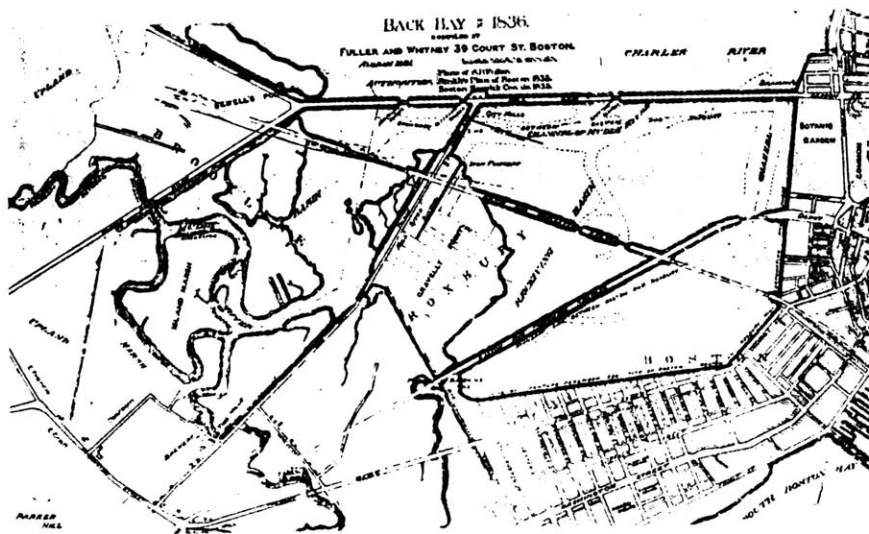
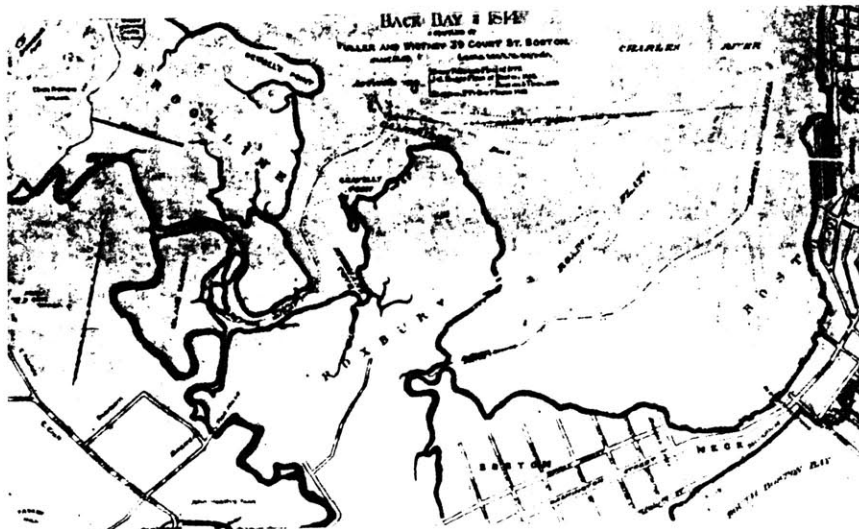
³ "The City Shaped", p. 121

⁴ "Boston: A Topographical History", p. 99

⁵ "Boston: A Topographical History", p. 102

fig. 3 - The Back Bay in 1814

fig. 4 - The Back Bay in 1836. Mill Dam is forming the northern flank.



A legislative commission was formed in 1852, and in 1857, the commissioners were authorized to sign contracts for filling, then to sell the new land as soon as it was made, and finally to use the sums obtained for the next stages of the filling. (5) As this proved to be a state affair, in which the city had no share, plans for the new Back Bay developed with little coordination with what the city was doing in the South End.⁶ The regions were in the first place separated from one another by the Providence and Worcester railway lines. Moreover, as the main avenues of the South End ran parallel to Washington Street and those of the future Back Bay development would reasonably ran parallel to the Mill Dam, the different axes of the two areas, which converged in the older city at a 45 degree angle, made it relatively difficult to connect these two sets of streets. Thus the two areas developed separately - the South End from the fifties and the Back Bay from the sixties⁷ - with little connection between them.

Columbus Avenue was planned in 1860 to extend from Park Square all the way to the Roxbury line over the land of the Boston Water-Power Company (6), in order to dispose the unhygienic flats between Tremont Street and the Boston and Providence Railroad tracks. The construction of this thoroughfare, which ran parallel to the railway tracks, began in 1868 and was completed in the following decade after the land in question had been transfered to the city by the company.⁸

South of Boylston Street the railway lines not only prevented any symmetrical extention of the Back Bay grid, but created a dreary kind of no man's land which hindered any

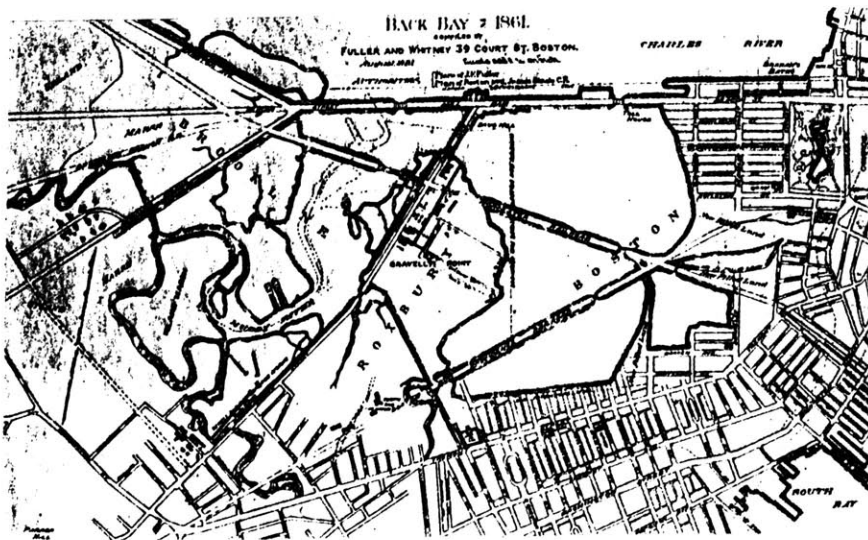
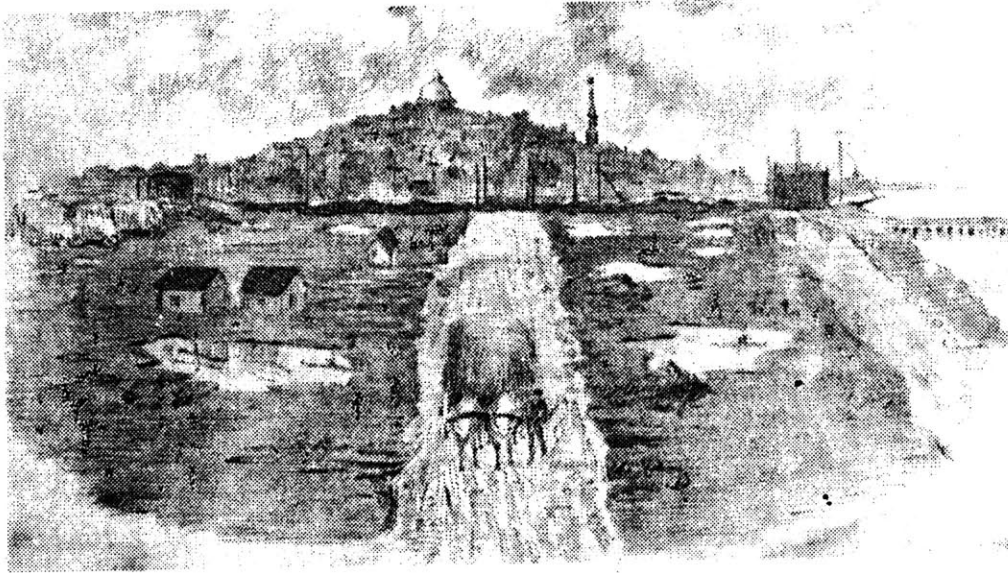
⁶ "Boston: A Topographical History", p. 128

⁷ "Boston: A Topographical History", p. 129

⁸ "Boston: A Topographical History", p. 129

fig. 5 - Beacon Hill seen across filled Mill Pond.

fig. 6 - The Back Bay and the South End in 1861.



attempt at good urban design. Thus confined by the Public Garden on the east, the Charles River on the north, the Muddy River on the west and railway lines on the south, the Back Bay developed in isolation. While the breadth of Commonwealth Avenue created a grand pathway into the Public Garden and the Common, only Berkeley and Dartmouth Streets, as well as Massachusetts Avenue bridged the railway barrier to the South End.

By the end of the century the North and West Ends had become predominantly areas of tenements and lodging houses, with the newer South End lagging only slightly behind.⁹ Thus, the supremacy of the Back Bay as a residential district was established. The Back Bay, as originally conceived, was an island of elegance limited by water on the north, marshes on the west and railroad lines on the south. Cartographers, under the compelling necessity of doing something with the triangular no man's land that divided the Back Bay from the South End, outlined on maps additional streets to the south and west, which continued the Back Bay grid, but totally disregarded the inescapable problems of grade crossings and bridging the Muddy River.¹⁰

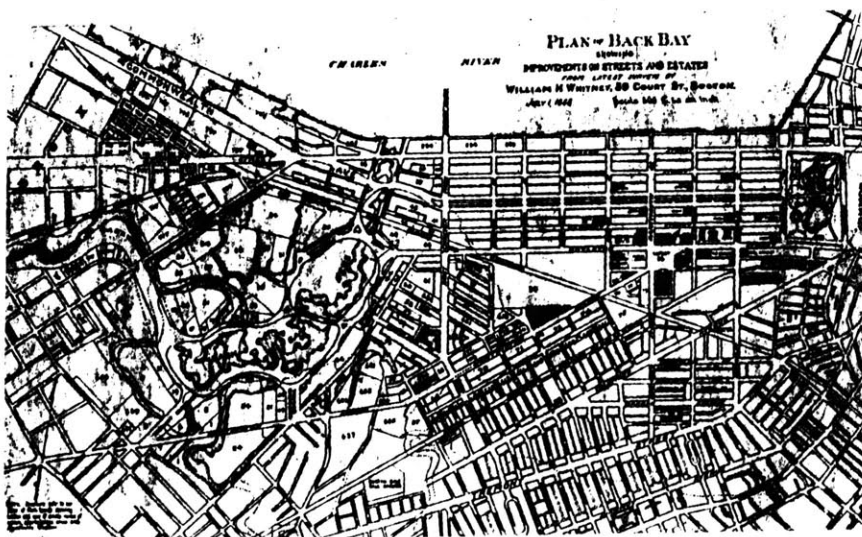
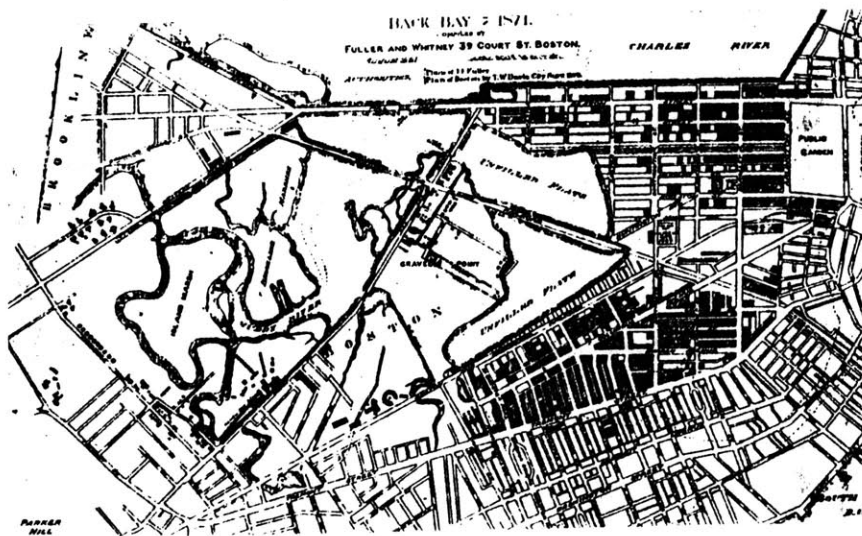
The Boston and Providence Railroad tracks cut diagonally across the unfilled Back Bay from Roxbury to Park Square since the mid thirties. They were obviously there to stay and could not be ignored. So, just as Columbus Avenue in the South End had been laid parallel to them, Huntington Avenue, to the north of them, was planned to extend from Copley Square toward the Brookline line. In Fuller and Whitney's survey of 1871 (7),

⁹ "Boston: A Topographical History", p. 177

¹⁰ "Boston: A Topographical History", p. 178

fig. 7 - The Back Bay and the South End in 1871.

fig. 8 - The Back Bay and the South End in 1888.



Huntington Avenue extended only a single block toward Exeter Street.¹¹ As the unused flats that flanked the Boston and Worcester tracks were filled, the railroad acquired them for train yards. Thus, when Huntington Avenue bridged the tracks and was laid out beyond Exeter Street, it was separated from Boylston Street - the frontier of the Back Bay to the south - by an impenetrable barrier of railroad yards that still has strong psychological as well as physical connotations. (8)

1.3 The formation of leftover sites in the city

It was not until the development of the Prudential Center in the 1960's¹² that urban infill projects have begun to deal with the leftover spaces resulting from the passage of the railroad and the highways through the urban fabric. (9) The Massachusetts Turnpike is a high-speed highway that passes through the central area of Boston. It is an ambiguous urban intervention, felt either as a barrier in reference to movement on the older streets, or as a path when one imagines oneself to be driving on it. When driving through it, the Pike is a massive green painted wall, appearing fragmentarily at certain spots. As a path it is a ribbon rising, dipping and turning, studded with signs. The Mass Pike winds inexplicably through the center, and breaks the orientation link.¹³

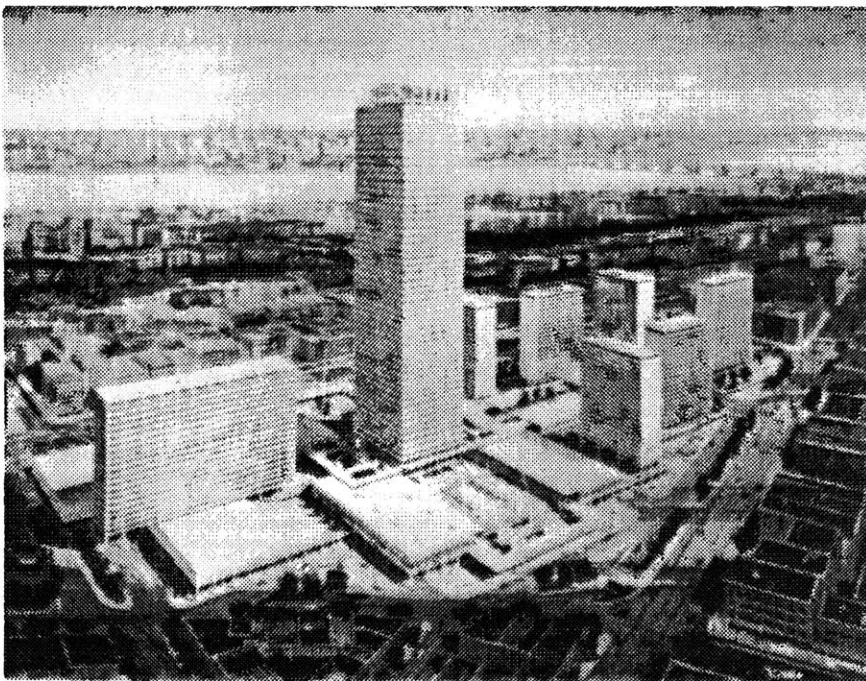
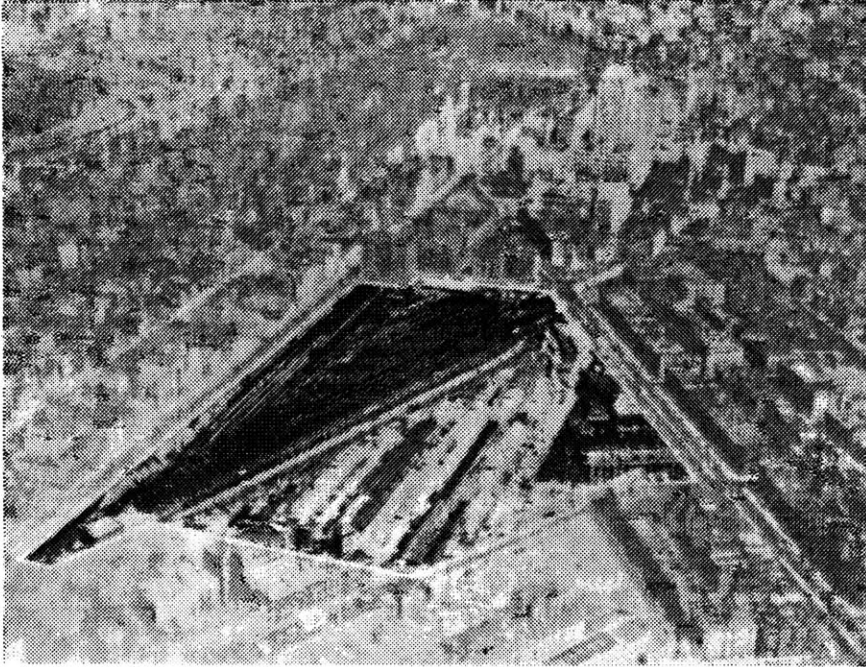
During the 1980's, Air Rights Development of projects like Copley Place (10), the Hancock Garage and the new Back Bay / South End Station to the southeast and the Hynes Convention Center to the northwest, over land occupied by Conrail and the Mass Pike, has continued to treat the wounds of the city. However, in spite of their effort, the

¹¹ "Boston: A Topographical History", p. 178

¹² "Past Futures", p. 71

¹³ "Image of the City", p. 23

fig. 9 - Site and proposal for the Prudential development.



longlasting effect of mass transit vehicular corridors passing through the city, still presents a forceful urban division.

1.4 Plans for an urban infill: The Hancock Office/Garage complex

Although the proposed mixed use ARD was canceled before construction began, the design of the project had progressed in sufficient detail for us to learn about its treatment of an urban infill in a leftover site.¹⁴ The complex would have been built adjacent to Hancock's existing garage, and bordered by Columbus Avenue, Clarendon Street, Stanhope Street and Chaner's Place. (11, 12) The project was designed as an Air Rights construction, spanning six lanes of the Mass Pike and two rail trucks. In addition, the complex was anchored to an adjacent piece of terra-firma currently owned by Hancock. The MTA is the sole owner of the land beneath the Pike and the adjacent rails; the tracks exist as a surface easement only. The total site area is approximately 42,000 s.f., of which approximately 25,000 s.f. is highway air-space, 5,000 s.f. is fixed rail air-space, and 12,000 is terra firma.

The total development costs were calculated to be \$30 million. An interesting mix of uses was envisioned. The proposed project contained not only office space, ground floor retail and parking, but it was proposed as the new home of the Back Bay post office. In total the building was designed to rise 100 ft. above street level. The principal architect/engineer design group for the project was Zaldostani Associates of Copley Place fame. Although Zaldastani did not engage in detailed negotiations with the MTA,

¹⁴Most of the information used in this section was taken from, "A conceptual analysis of Air Rights Development over the urban transit corridors of Boston", pp. 46-49

fig. 10 - Copley Place



they were able to establish detailed plans and substantial cost estimates based on their previous experience with Mass Pike ARD.

As it was envisioned, a row of columns would be located on the median strip of the Mass Pike, acting as a central support for the proposed platform. The platform itself was planned to have been constructed at street level, in order to minimize transition problems, which usually create an aesthetic tension between the platform and the existing streets. Since the Mass Pike is below city street grade at the proposed location, and is free from elevated access ramps, this smooth transition could have been realized. Planning decisions did not maximize the density on the terra-firma portion of the site. This absence of density was a function of the fact that the entire structure was designed to conform to applicable zoning statutes for the area. Additionally, this piece of unencumbered land was planned as the staging area for the construction of the corridor-spanning platform. It was envisioned that one to two lanes on each side of the median strip would be closed to traffic from approximately midnight to six in the morning on weekdays, and for longer periods, as required, on the weekends. Approximately one year was planned for the major construction.

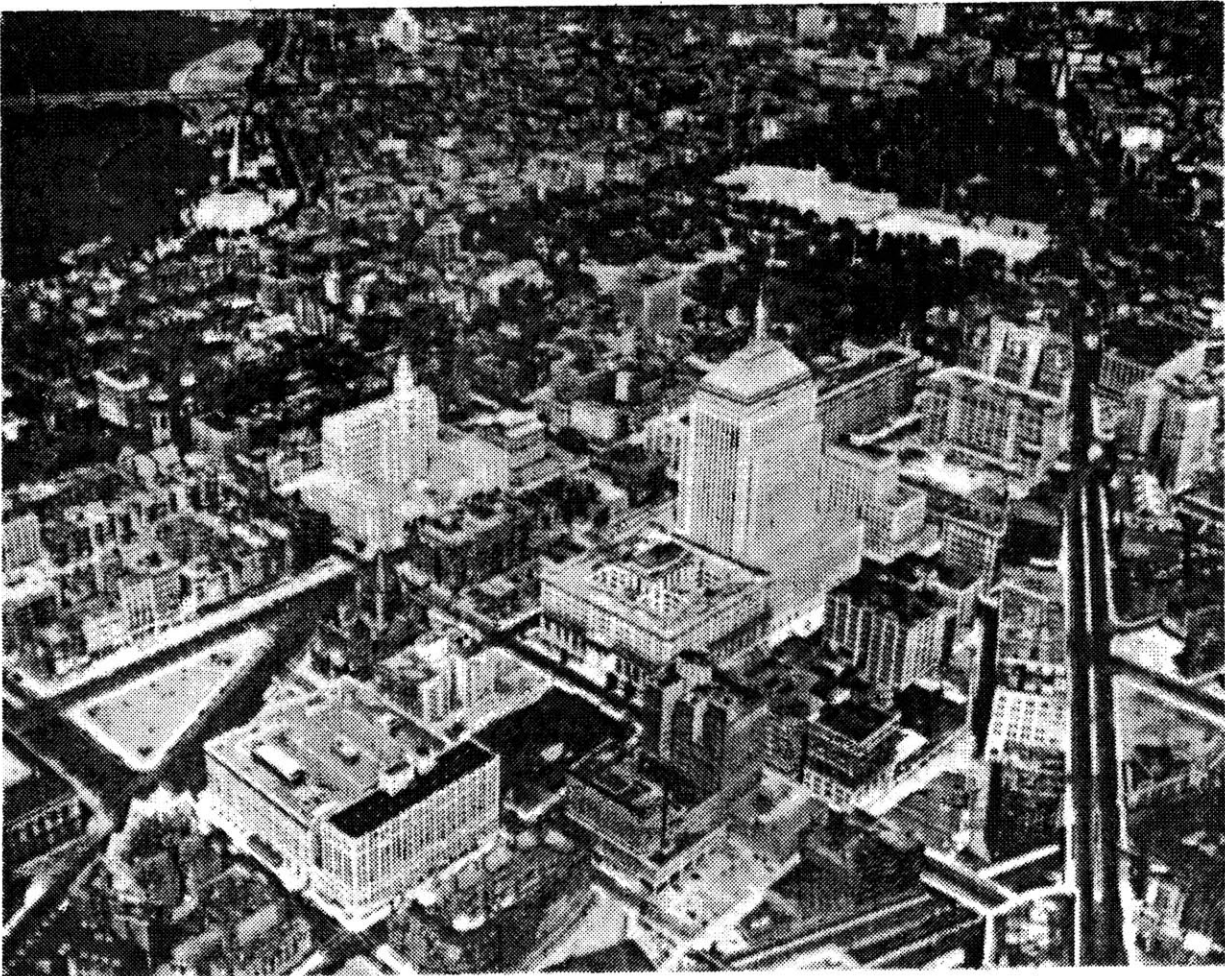
Interestingly, the demise of the project was a function of two interrelated factors. First, the general slowdown in the office market mitigated some of Hancock's enthusiasm for the project. Second, the Neighborhood Association of the Back Bay was prepared to resist the project, unless it was convinced that the parking component would not add to the vehicular congestion of the neighborhood streets. According to the original design, the Neighborhood Association's fears were unfounded. Hancock/Zaldastani had planned a sky-bridge to run across and above Clarendon Street, with which to connect the new

garage with their existing facility. The bridge-link between the two garages is valuable because the existing garage, built over Mass Pike Air Rights, was designed with spiral access ramps tying directly into the Pike below. As such, it was envisioned that the new garage would have access to the same spiral ramps via the linking bridge.

The BRA, however, rejected the construction of a sky bridge. Without this above-ground link the new garage had to be accessed from the city streets. Accordingly, neighborhood resistance to the project, on the grounds of increased traffic congestion, became considerable. Meanwhile, the developer's enthusiasm for the Hancock Project, had ran out; the above neighborhood concerns tipped the balance away from the project, in a softening market.

In conclusion, the analysis of this site's image is a compilation of what seem to be the major difficulties of this site: confusions, floating points, weak boundaries, isolations, breaks in continuity, ambiguities, branchings and lack of character or differentiation.

fig. 12 - Aerial View of the Insurance District in the 1950's. (The site is visible in the lower right-hand corner of the photograph)



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2 URBAN ORGANIZATION

*An environmental image may be analyzed into three components: identity, spatial or pattern relation and meaning - whether practical or emotional.*¹⁵

2.1 To make a place

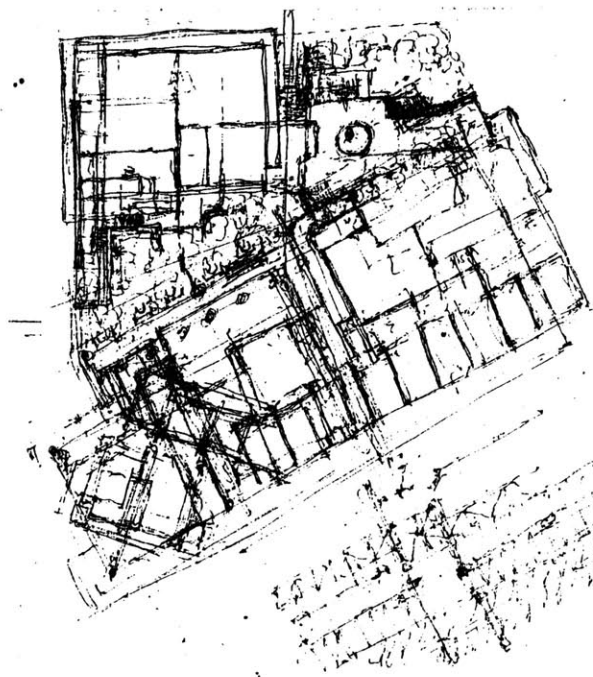
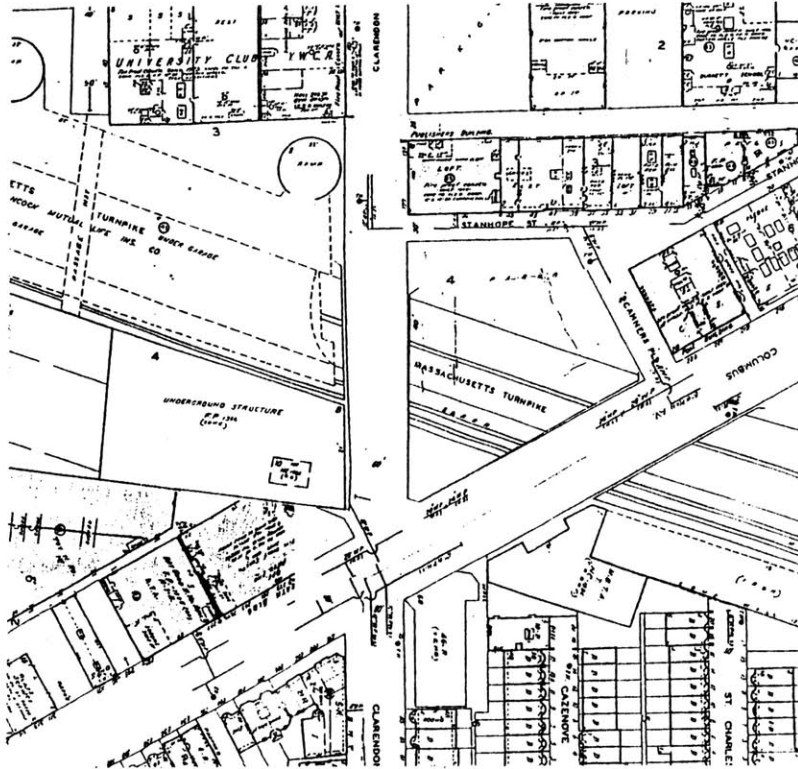
The northern boundary of the site, at the corner of Columbus Avenue and Clarendon Street, consists of a low row of buildings, containing a couple of restaurants and a cafe. The scale of the buildings is very intimate and their construction is delicate. They are very pleasant if they are observed as a closed set. Another part of the site is a parking area, whereas the rest of it is a hole which ruptures the city skin and reveals the constant buzzing of cars and trains passing underneath on the Turpike and the railroad tracks. (13) Consequently, there is no harmony between the site and its immediate neighbors. What exists though, is the opportunity for the fabrication of an outside space into a "place", by the reconfiguration of this leftover site. (14)

The continuity of building in the city forms streets and squares. It encloses space and defines outdoor spaces. Whereas the interiors of volumes, rooms, are functionally justified as the construction of shelter, outdoor spaces are viewed as accidental and marginal. In a materialistic world our environment resembles a rock-strewn river, the rocks being buildings and the river being traffic passing them, both vehicular and pedestrian. Where people foregather, in market place or forum, there will therefore be some expression of this to give identity to the activity. Market place, focal point, clearly defined promenade and so on. In other words the outside is articulated into spaces just as

¹⁵ "Image of the City", p. 8

fig. 13 - The site with its immediate neighbors.

fig. 14 - Attempt at fabrication of an outside space.



is the inside, but for its own reasons.¹⁶

Consequently, instead of a shapeless environment based on the principle of flow we have an articulated environment resulting from the breaking up of flow into action and rest, into corridor, street and market place, alley and square, and all the minor devolutions. The practical result of so articulating the town into identifiable parts, is that no sooner do we create a 'here' than we have to admit a 'there', and it is precisely in the manipulation of these two spatial concepts that a large part of urban drama arises. Moreover, a set of attributes can be implemented, which can subtly strengthen the overall image of the outside space/volume:¹⁷ (15, 16)

Space continuity: A complex interlocking of volumes in which the quality of light and materials blurs the distinction between outside and inside.

Deflection: Where a view is terminated by a building at right angles to the axis then the enclosed space is complete. Alternatively, changing the angle of the terminal building, implies a secondary space.

Functional space: A way of emphasizing an event in the street by giving this function its own space which becomes alive and informed by conversation and tension.

2.2 The place and the city

Similar to the design of external and internal spaces, as discussed above, attention must be given to the organization of the spaces we create to formulate the elements that

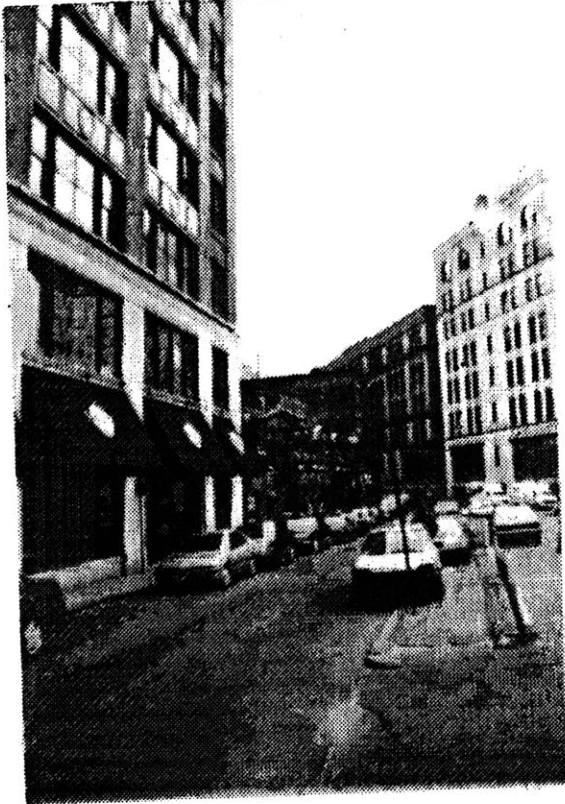
¹⁶ "Townscape", p. 183

¹⁷ "Townscape", p. 187

fig. 15, 16 - Photographs showing potential conditions for articulation of the site

fig. 15 - View of restaurants and cafe on Stanhope Street

fig. 16 - View to the west, towards the site, along Stanhope Street.



compose an image at the scale of the city. (17, 18) The construction of the image of the city in physical forms can be classified to five elements: (1) paths, (2) edges, (3) districts, (4) nodes, (5) landmarks.¹⁸ These seem to reappear in various environments:

Paths are the channels along which the observer potentially moves. (19) The image of a given physical reality may be experienced in different ways. For example, an express way may be a path for the driver, but an edge for the pedestrian. In Boston, the Mass Pike is inaccessible to pedestrians, but it is spatially prominent. It is a case of what might be called a fragmentary edge.¹⁹ Characteristic spatial qualities are able to strengthen the image of particular paths. Where major paths lack identity, or are easily confused one for the other, the entire city image is unclear. But other factors of continuity have importance as well. When the channel width changes, or when the spatial continuity is interrupted, people have difficulty in sensing a continuation of the same path. The railroad and subway lines are other examples of detachment. The surface entrances of the stations may be strategic nodes in the city, but they are related along conceptual linkages.²⁰

Edges are the elements not used as paths. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development walls. (20) The junction, or place of break in transportation, has compelling importance for the city observer. Because decision must be made at junctions, people heighten their attentions at such places and perceive nearby elements with more than normal clarity. This tendency is confirmed so repeatedly, that elements located at junctions may automatically be

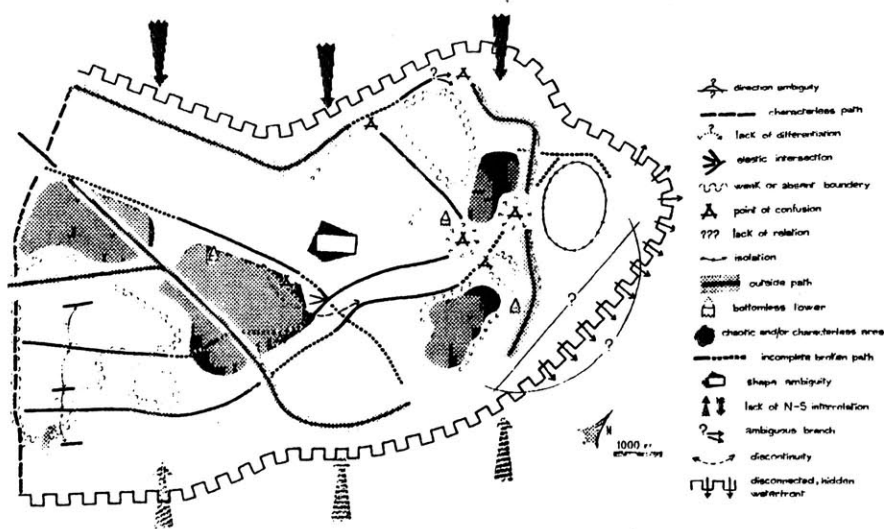
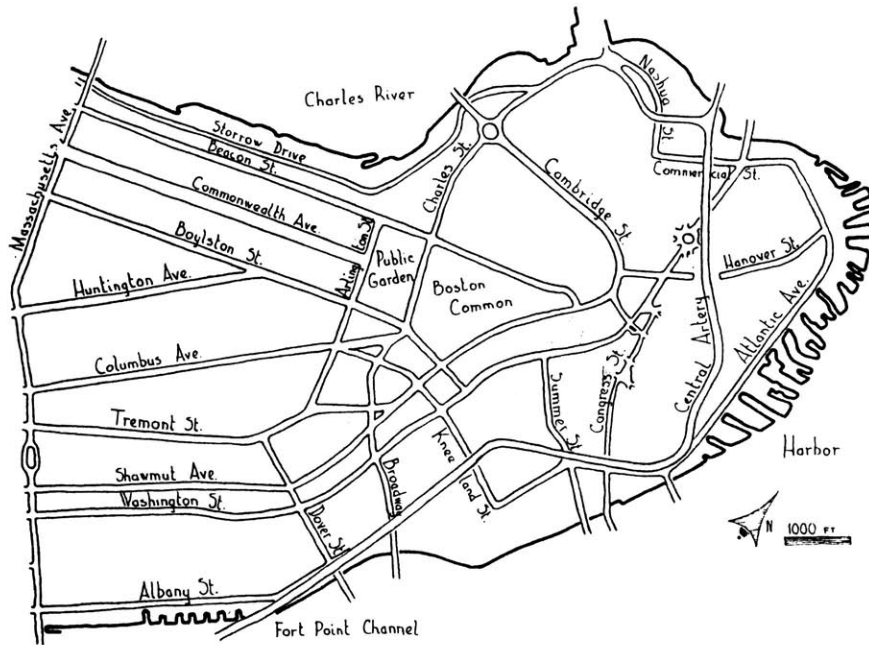
¹⁸ "Image of the City", pp. 47-48

¹⁹ "Image of the City", p. 63

²⁰ "Image of the City", p. 57

fig. 17 - Outline map of the Boston peninsula.

fig. 18 - Problems of the Boston image.



assumed to derive special prominence from their location.²¹

Districts are the medium-to-large sections of the city, conceived of as having two-dimensional extent which the observer mentally enters 'inside of' and which are recognizable as having some common, identifying character. Boston, while confusing in its path pattern, has, in its differentiated districts, a quality that quite makes up for it. Each part is different from the other. You can tell pretty much what area you are in. The physical characteristics that determine districts, include: texture, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography.²² Edges may augment the tendency of districts to fragment the city in a disorganizing way. In Boston, edges, by hindering transitions from one district to another, may add to the impression of disorganization. (21) Some districts are single ones, standing alone in their zone, and the South End is a Boston example.²³ The South End while having the same topographical form of long, parallel major streets interconnected by short minor streets, and while often mentally considered as a regular grid, is much less successful in its pattern than the Back Bay. Major and minor streets are also differentiated by width and use, and many of the minor streets have more character than those of the Back Bay. But there is a lack of differentiated character in the major streets. Columbus Avenue is hard to distinguish from Tremont Street, or from Shawmut Avenue.²⁴ This interchangeability can be confusing to the image perception of the district.

²¹ "Image of the City", p. 72

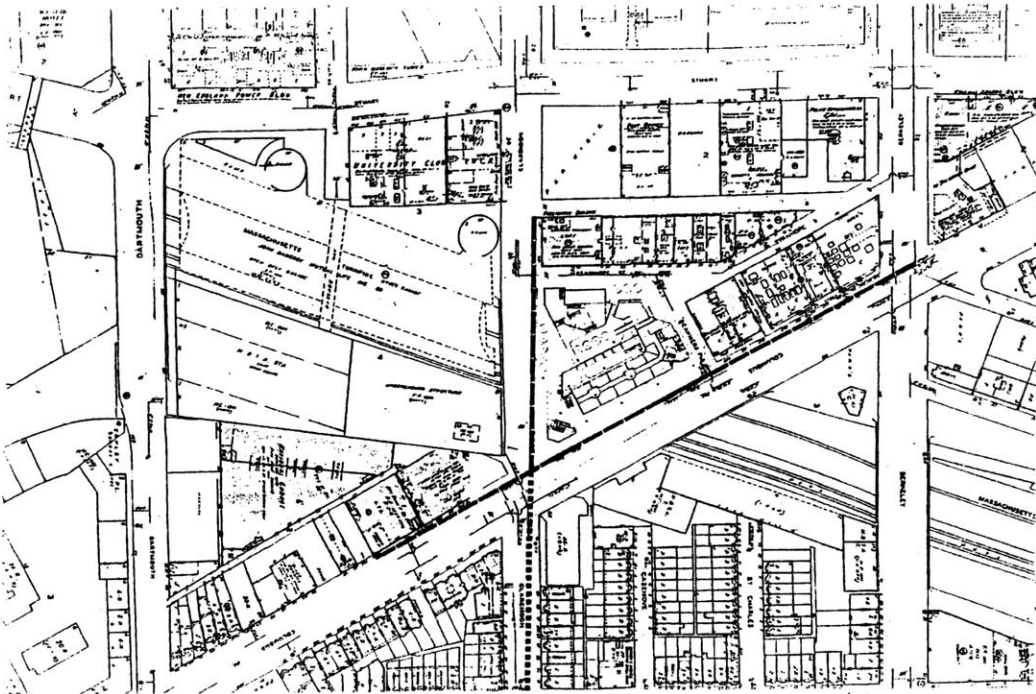
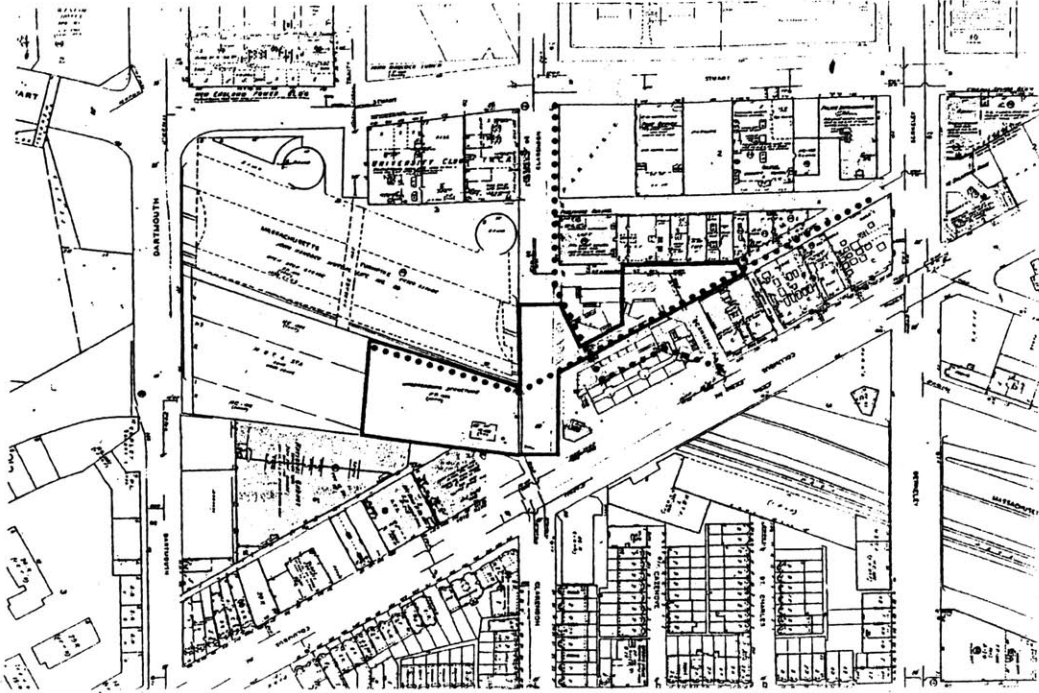
²² "Image of the City", p. 67

²³ "Image of the City", p. 70

²⁴ "Image of the City", p. 61

fig. 19 - Paths and Landmarks on the site.

fig. 20 - Edges and Junctions on the site.



Nodes are the strategic points in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of path, moments of shift from one structure to another. (22) A strong physical form is not absolutely essential to the recognition of a node. But where the space has some form, the impact is much stronger. The node becomes memorable. In any event, the most successful node seemed both to be unique in some way and at the same time to intensify some surrounding characteristic.²⁵ The subway stations, strung along their invisible path systems, are strategic junction nodes. Some, like Park Street, Charles Street, Copley, South Station, and Back Bay / South End, are quite important in the Boston map. Most of these key stations are associated with some key surface feature. Others, such as Massachusetts Avenue, are not prominent. This may be because of unfavorable physical circumstances: the lack of visual interest and/or the disassociation of the subway node from the street crossing.²⁶

Landmarks are another type of point-reference, but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign, store, or mountain. Their use involves the singling out of one element from a host of possibilities.

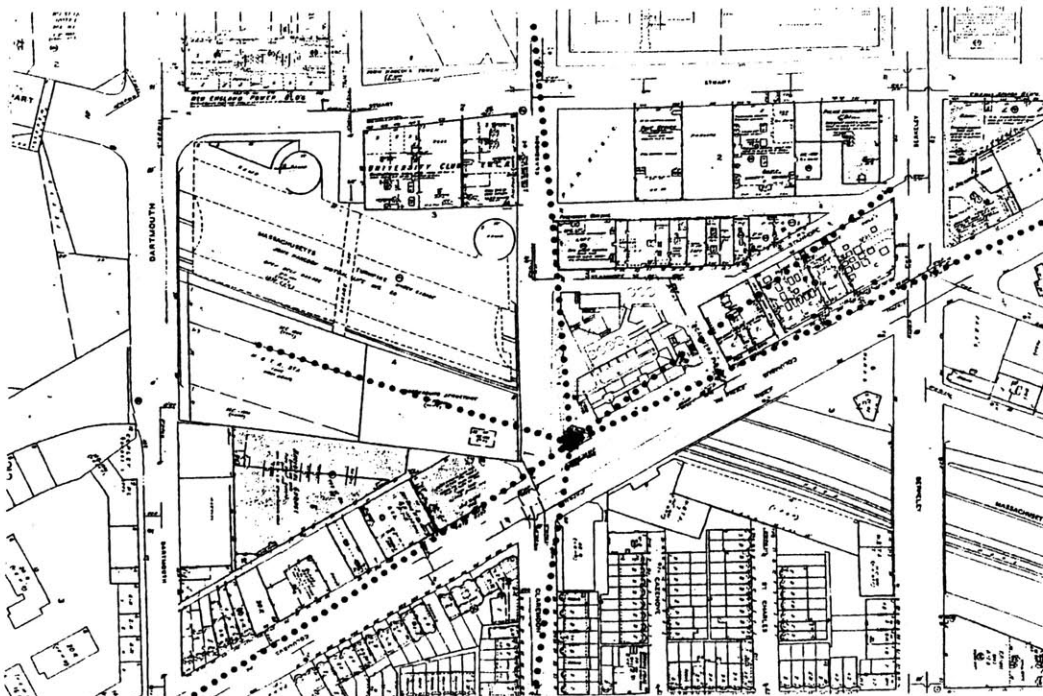
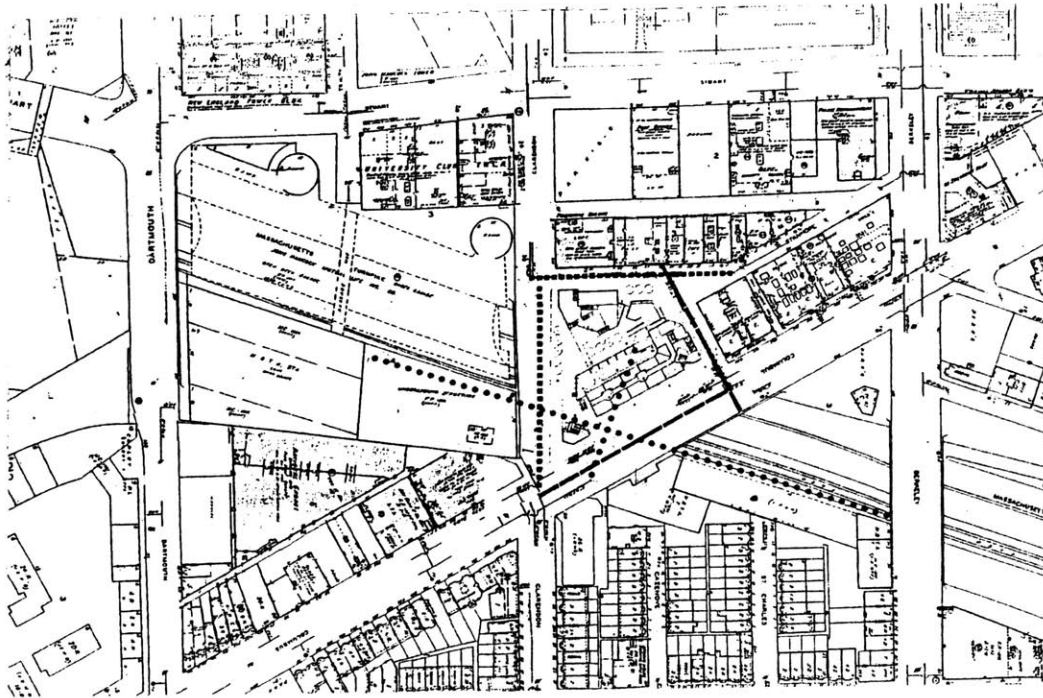
After successful differentiation and understanding of parts, a study can move on to consideration of a total system. Rather than a single comprehensive image, there seemed

²⁵ "Image of the City", p. 76

²⁶ "Image of the City", p. 74

fig. 21 - Interactions of Districts' and Pike's geometries on the site.

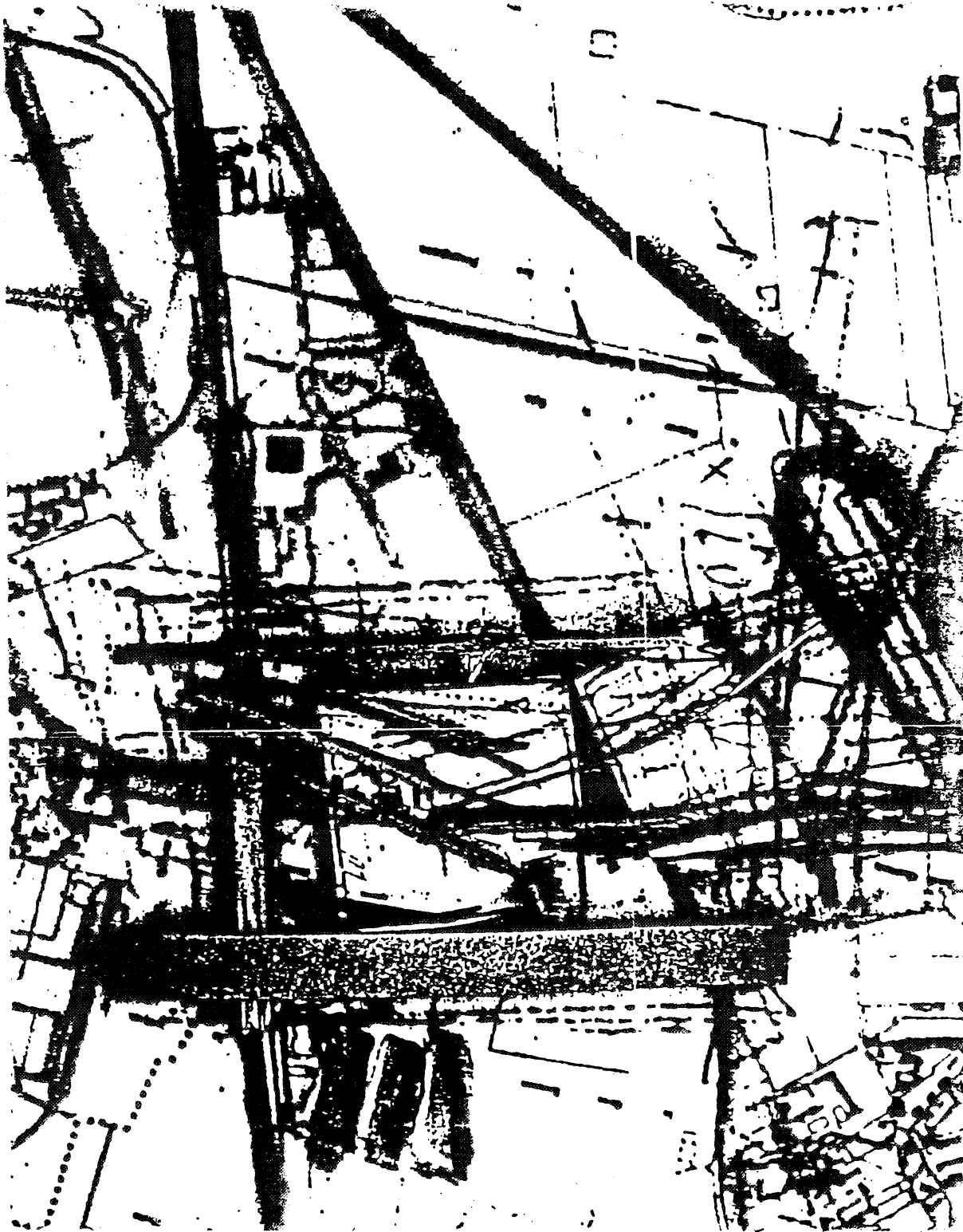
fig. 22 - The subway headhouse as anode on the site.



to be sets of images which more or less overlapped and interrelated.²⁷ One might infer from this that the images of greatest value are those which most clearly approach a strong total field: Dense, Rigid, and Vivid (23), which make use of all element types and form characteristics without narrow concentration, and which can be put together either hierarchically or continuously, as occasion demands, both at the macro scale of the city as well as the micro scale of the site.

²⁷ "Image of the City", p. 85

fig. 23 - Coop Himmelblau "The power of the city" Vienna, 1988.



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3 A. R. D. STRATEGIES

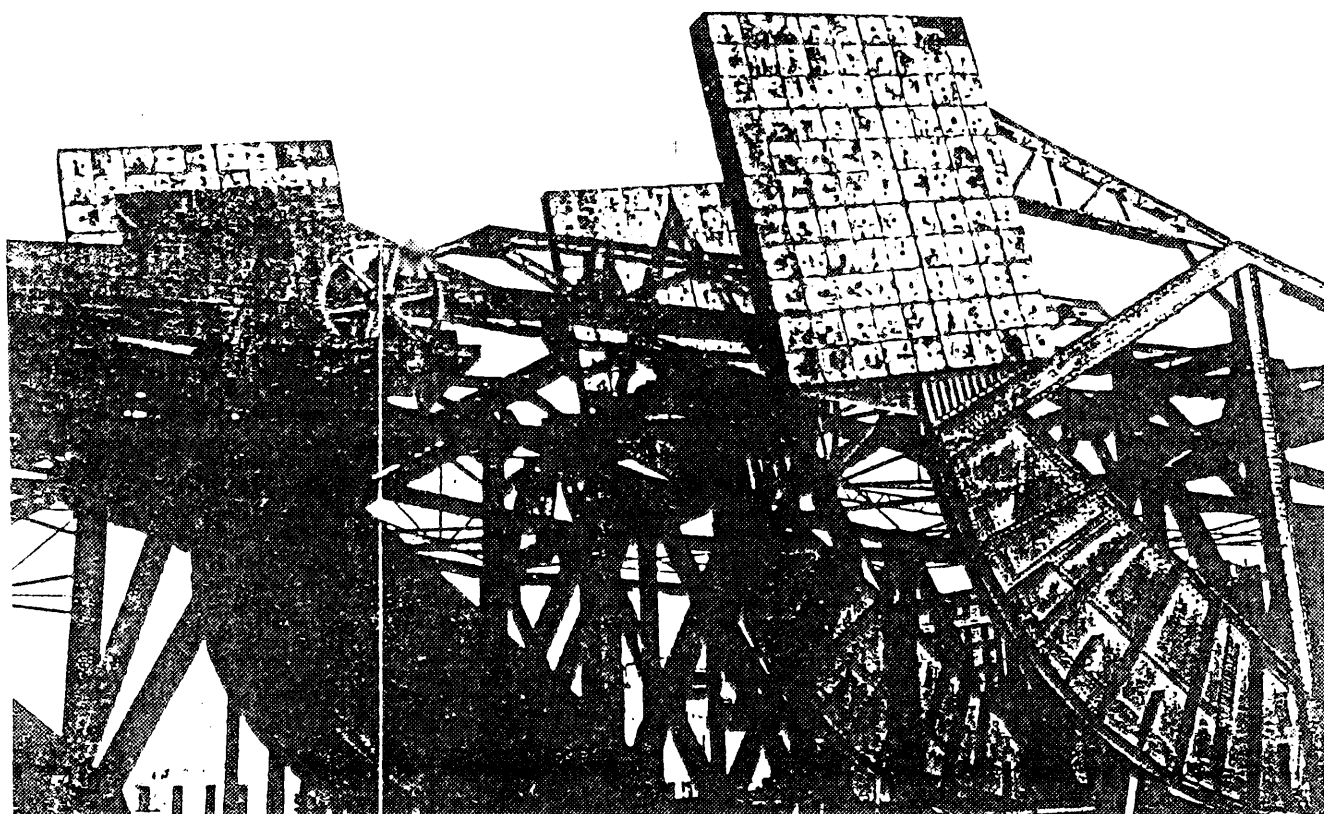
"CULUS EST SOLUM, EJUS EST USQUE AD COELUM". This Latin maxim, as codified into English Common Law doctrine, is the originating principle which recognized the legal ownership of rights in air-space.²⁸

3.1 Framework for success

The success of an ARD will depend on its ability to control within a framework of some nature the facilities which are finally built within it. It will also be subject to changes in demand for facilities, changes in technology and way of life. Taking this need for flexibility, a physical framework must be described which can be subject to a great variety of specific space allocations, architectural expressions and technical innovations. The existing urban fabric consists of planar experience and movement with isolated vertical systems which are only local and therefore strongly dependent on the basic horizontal system at ground level. Any proposal should consist of a three-dimensional movement system which makes possible a new experience of user penetration through volumes of urban spaces rather than only along the perimeter. The function which exists under the ARD requires a long span structure so as to have the least amount of interference with the movement of trains and approximately 20 ft. clearance. Also, an extensive means of air movement, both supply and exhaust. A grid may be used which is composed of load points on a truss. Within this truss will be located all major utility functions. Facilities above may undulate in varying heights above the truss, and to either side of the truss, where they meet the different interface conditions of the site. (24-30)

²⁸ "Air-Rights utilization for urban development", p. 2

fig. 24 - Collage: Vertical Complexity



3.2 Site considerations

Cities in America, especially the older ones are land hungry. Large sites are sought preferably accessible by subway. There is need to accommodate the increasing number of employees of central city firms. Technical issues of one extremely complex nature have to be considered:²⁹

- (1) Interaction between the proposed project and the surrounding area.
- (2) Projected railroad and automobile activity and attendant problems of track and pike layouts and utility requirements.
- (3) Structural constraints imposed by present and proposed uses and subsoil conditions.
- (4) Traffic and transportation system facilitating circulation to and from the site.
- (5) Projected market for commercial space.
- (6) Need for major public and quasi-public facilities e.g. parking.
- (7) Capital costs to city or state agencies incurred directly or indirectly by the proposed development.
- (8) Extent and nature of government subsidies likely to be needed, as well as estimates of external benefits to be derived by the city.

Not all of these issues can be fully explored within the scope of this thesis, but the initial directions and constraints are set forth here and incorporated in the thesis project. These recommendations may be purposely schematic and architecturally not developed to a high degree of specificity and thus have the flexibility to accommodate necessary changes in the suggested program.

²⁹ "Sunnyside Yards", p. 5

fig. 25 - BSA Urban Design focus team. Mass Pike Air-Rights. List of Parcels.

BSA Urban Design Focus Team
Mass Pike Air Rights
6 November 1989

LIST OF PARCELS

AREA	PARCEL #	PARCEL NAME	FOOTPRINT TUP/PIK	(SF x 1000) F.A.R.	ADJ.	FOOTPRINT TOTAL	ASSUME F.A.R.	BUILDABLE SF x 1000	AREA KSF
A	1	SE EXPWY/MASS PIKE INTERCHANGE	NC	NC	NC	NC	4	NC	NC
B	2	INTERCHANGE TO HARRISON AVE	110	48	78	230	4	944	—
B	3	HARRISON TO WASHINGTON ST	33	36	0	69	4	272	—
B	4	WASHINGTON TO SHAWMUT AVE	35	37	0	72	4	288	—
B	5	SHAWMUT TO TREMONT ST	66	80	0	146	4	584	—
B	6	TREMONT TO ARLINGTON ST	11	0	0	11	4	44	2,132
C	7	ARLINGTON TO BERKELEY ST	100	57	26	183	4	732	—
C	8	BERKELEY TO COLUMBUS AVE	26	16	47	89	4	352	—
C	9	COLUMBUS TO CLARENDON ST	22	12	33	67	4	268	1,352
D	10	HANCOCK GARAGE/COPLEY PL/PRU	NC	NC	NC	0	4	0	NC
E	11	DALTON ST TO BOYLSTON ST	12	14	0	26	4	104	—
E	12	BOYLSTON ST TO MASS AVE	18	2	49	69	4	276	—
E	13	MASS AVE TO PARK DR	150	45	20	215	4	860	—
E	14	PARK DR TO BROOKLINE AVE	135	40	115	290	4	1,160	—
E	15	BROOKLINE AVE TO BEACON ST OVERPASS	210	*	335	546	4	2,180	4,580
F	16	BEACON ST OVERPASS TO ST MARYS	225	*	0	225	4	900	—
F	17	ST MARYS ST TO B.U. BRIDGE	—	—	—	000	4	1,600	—
F	18	B.U. BRIDGE TO ALLSTON-BEACON YARD	255	*	55	310	4	1,240	3,700
G	19	ALLSTON-BEACON YARDS	1,100	2,900	0	4,000	4	16,000	16,000
TOTAL KSF			1,408	385	758	2,941	*	11,794	13,794
ACRES			32.3	8.6	17.4	67.3			

NOTES

1. AREA

- A. SE EXPRESSWAY/MASS PIKE INTERCHANGE
- B. INTERCHANGE TO ARLINGTON ST.
- C. ARLINGTON ST. TO CLARENDON ST.
- D. HANCOCK GARAGE/ COPLEY PLACE/ PRUDENTIAL
- E. DALTON ST. TO BEACON ST. OVERPASS
- F. BEACON ST. OVERPASS TO ALLSTON-BEACON YARDS
- G. ALLSTON-BEACON YARDS

8

2. PARCELS 1 (GROUP A) AND 19 (GROUP G) NOT INCLUDED IN TOTALS

3. 43,580 SF = 1 ACRE

* IN T-PIKE SF

This proposal is attempting to recognize both human needs and values and the technical and practical problems of building and maintaining such a project. Attention should be paid to distribution of uses i.e. office, retail, subway headhouse and to benefits, such as a plaza and promenade areas.

Due to continued railroad and freeway operations, special measures are recommended to absorb the noise and dampen the vibrations. Column surfaces in the railroad and freeway level should be covered with absorptive material. Air-space should be provided between the under-surface of overhead decking and a resiliently mounted ceiling of sound-absorbing material over the urban transit corridor below. Rails must be specifically isolated from nearby structural components to minimize vibration transmission. Exhaust gases from engines must be removed from the enclosed area.³⁰ Because uses, activities, and functions, each with differing space requirements are to be superimposed upon one another within an overall series of structures, a structural system was chosen which provides the flexibility to accommodate all situations.

3.3 Marketing considerations

The fringe of the financial district in Boston is definitely expanding eastward towards the waterfront, and southwards towards South Station as well as the new developing office area of the Back Bay. All this is happening in order to accommodate with the continuing demand for new first class office space. The Air Rights Development in the Back Bay/South End Station area presents a unique opportunity for a mixed use development next to a modern mass transit transportation center, which services about 35,000

³⁰ "Sunnyside Yards", p. 31

fig. 26 - BSA Urban Design focus team. Mass Pike Air-Rights. Design Issues.

BSA Urban Design Focus Team
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III. DESIGN

The major design issues for each area are summarized below.

AREA A

- | | |
|---------------------|--|
| Overall order | ° This is an edge of city heading west, and heading north. |
| Landmark space | ° The harbor's edge is to the east.
° Herald Street is to the west. |
| Gate ° | This is a major gate to the city. |
| Traffic ° | Central Artery/Third Harbor Tunnel is underway.
° Local traffic for Air Rights would be required. |
| Knitting together | ° Not relevant |
| Open spaces | ° Allow a linear greenspace connecting to the harbor. |
| Institutional needs | ° Tufts, TNEMC |
| Major question | ° Is Air Rights part of Central Artery/Third Harbor tunnel planning? |

AREA B,C

- | | |
|---------------------|--|
| Overall order | ° Will be the Herald Street Space. |
| Landmark space | ° Arlington Street Intersection Berkeley/Clarendon Street Intersection.
Back Bay Station. |
| Gate | ° Boundary between South End and Bay Village/Downtown/Back Bay. |
| Traffic | ° Herald Street. |
| Knitting together | ° Link residential on both sides. |
| open spaces | ° Pllow a linear greenspace connecting to the harbor.
° provide pocket parks. |
| Institutional needs | ° Tufts, TNEMC |
| major question | ° What will Herald Street be?
° What ramp changes will occur? |

AREA D (Not in scope of Study)

commuters using the rail, bus and rapid transit facilities.³¹

Air Rights Development over depressed roadways offers many advantages: The repair of neighborhoods divided by expressways, improved access to amenities, the creation of valuable real estate from what would otherwise be considered 'waste space' around and over the highways that scar the downtowns of many cities. And Air-Rights also offer excellent opportunities to improve highway safety as part of the building program.³² These issues can be framed in the guise of the following questions: What are the existing land uses in each of the abutting parcels? Are the existing land uses compatible if they were to be united? How do parcel land use regulations apply, e.g. what are the allowable building heights? How do land elevations and general topography compare? What are the comparative assessed values in the abutting parcels? What are the soil or structural limitations in the abutting parcels and in the right of way? How will traffic and transportation access be affected by uniting a given set of abutting parcels? What are the considerations for the construction of a platform or supporting structure over the ARD? What are the ventilation and anti-pollution considerations? What is the acreage of the proposed land for development? What are the considerations in the underlying land for support and utility purposes? Are there any time restrictions and encumbrances?³³

3.4 Logistical, Structural and Financial Considerations

A principal with Zaldastani Associates - The Boston firm responsible for the Structural Engineering of the Hancock Garage and Copley Place, goes on to say that,

³¹ "Air-Rights: South Station Transportation Center", p. 1

³² "A conceptual analysis of Air Rights Development over the urban transit corridors of Boston", p. 5

³³ "A conceptual analysis of Air Rights Development over the urban transit corridors of Boston", pp. 8-9

fig. 27 - Urban Design focus team. Mass Pike Air-Rights. View of Parcel 8.

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AREA C



"...our experience in these complex projects points out the particular engineering and logistical challenges of highway Air-Rights construction. The structural engineer is required to find innovative means to underpin large structures where foundations and support column locations are extremely limited by underlying transportation corridors. Access to the site and locating adequate staging areas for moving and storing strong equipment and materials may also be difficult. Often, roadways must be kept open and railways clear as construction proceeds, and phased strategies must be worked out to bring the project to completion economically, quickly, and safely".

All the above considerations are essentially extras; those typical technical issues of soil capacity testing, neighborhood traffic impact analysis, superstructure impact studies (i.e. sunlight and shadows concerns), must all be addressed. The design implications of the constraints which are unique to ARD will be discussed further. Within the Copley Place development process and at the Governor's request, the Office of State Planning (OSP), organized the CRC, Citizen's Review Committee, to identify design, environmental, economic and community considerations to serve as guidelines for the development.³⁴ Another interesting legal scenario which should be mentioned is that of parallel ownership. In such situations, two or more different transportation authorities occupy adjacent land upon which their transit corridors are located. Unless the different transportation agencies affected are able to present a unified position in terms of lease duration, remuneration, valuation, etc., a developer's ability to codify lease terms will be extremely difficult, and potentially costly. One approach, as in the case of the Copley Place development, is for the authority with the preponderance of Air Rights to lease, (e.g. MTA), to negotiate terms, under a master lease framework, with the prospective

³⁴ "A conceptual analysis of Air Rights Development over the urban transit corridors of Boston", p. 15

fig. 28 - BSA Urban Design focus team. Mass Pike Air-Rights. Notes on Parcels 8 and 9.

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Mass Pike Air Rights
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AREA/C PARCEL 8, 9

- 1) PAIRING WITH ADJACENT PARCELS
Desirable with both parcels.
- 2) CONSTRAINTS
Herald Street Extension.
Headhouses (2) to Back Bay Station.
Existing Shed Roof over Back Bay Station.
Egress from Platforms.
- 3) ASSETS
Berkeley/Columbus Intersection is a potential showpiece corner.
MBTA Access
- 4) RELATED PLANNING
Parsons Brinkerhoff Study for U.I.D.C.
John Hancock Proposal.
- 5) PRESERVE/ENHANCE EXISTING URBAN DESIGN
Match the cornice lines, setbacks of Columbus Avenue
(continue the "walls" of Columbus Ave)
Make an edge to the South End.
Make a terminus (visually and for traffic) of Back Bay Station.
- 6) HEIGHT/DENSITY
(see and below)
- 7) MATCH ADJACENT USES AND USERS
This part of Columbus Avenue is a transition from business to residential.
South Side: retail @ ground floor with residential above.
North Side: mixed use occupancy with retail at ground floor.
Provide covered pedestrian way along Clarendon Street.
- 8) TRAFFIC
Herald Street could start here.
- 9) CONCEPTS
This parcel should reinforce the boundary
by its massing (mid rise) and, occupancy (mixed use with some residential)

Place a tall mass at Parcel 9 to mark the end (or "start")
of Herald Street.

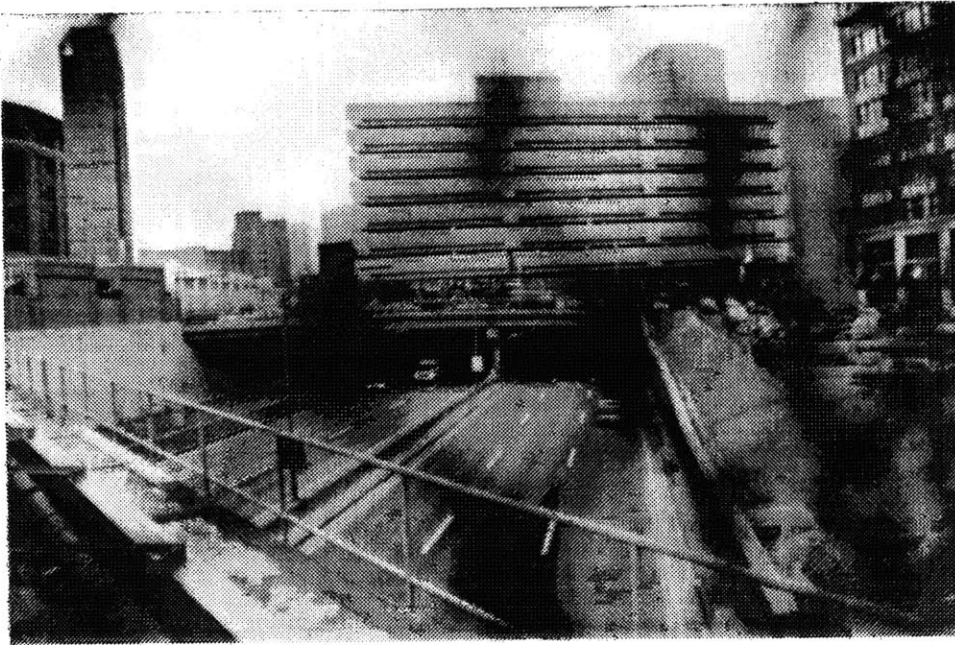
Make an open space out of Parcel 8 and allow pedestrian access.

developer, (e.g. UIDC), and to pro-rate the rent ultimately received by paying the adjoining authority involved, (e.g. Conrail), its percentage based minority share.³⁵

³⁵ "A conceptual analysis of Air Rights Development over the urban transit corridors of Boston, pp. 16-17

fig. 29 - Photograph showing Mass Pike through site. (Parcel 9)

fig. 30 - Photograph showing view across site towards southeast. (Parcel 8)



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4 PROCESS

*A building's contribution to the visual quality of a street or of a skyline can be measured just as well as its contribution to the climate. In fact, the public is extremely sensitive to the visual environment for its symbolic attributes. Matters of scale, color, shape, street character and view affect a population's image of its city and of itself. Visual qualities convey powerful emotional messages as to who dominates the city's environment.*³⁶

4.1 First Tasks

Before embarking on the design process of this or of any other project, there are some general issues, which have to be accounted for and which allow a more intimate understanding of the task at hand.³⁷

(A) Area Forces: Functions, Activities, Transportation, Development Directions, Constraints & Opportunities.

(B) Contexture: Spatial Logic & Language, Approaches & Vistas, Gravities & Foci, Material Affinities, Costs-Climate-etc.

(C) Program Associations: Precedences, Stereotypes and Prototypes, Technological Requirements, Trends & Tastes, Lucrativities, Opportunities.

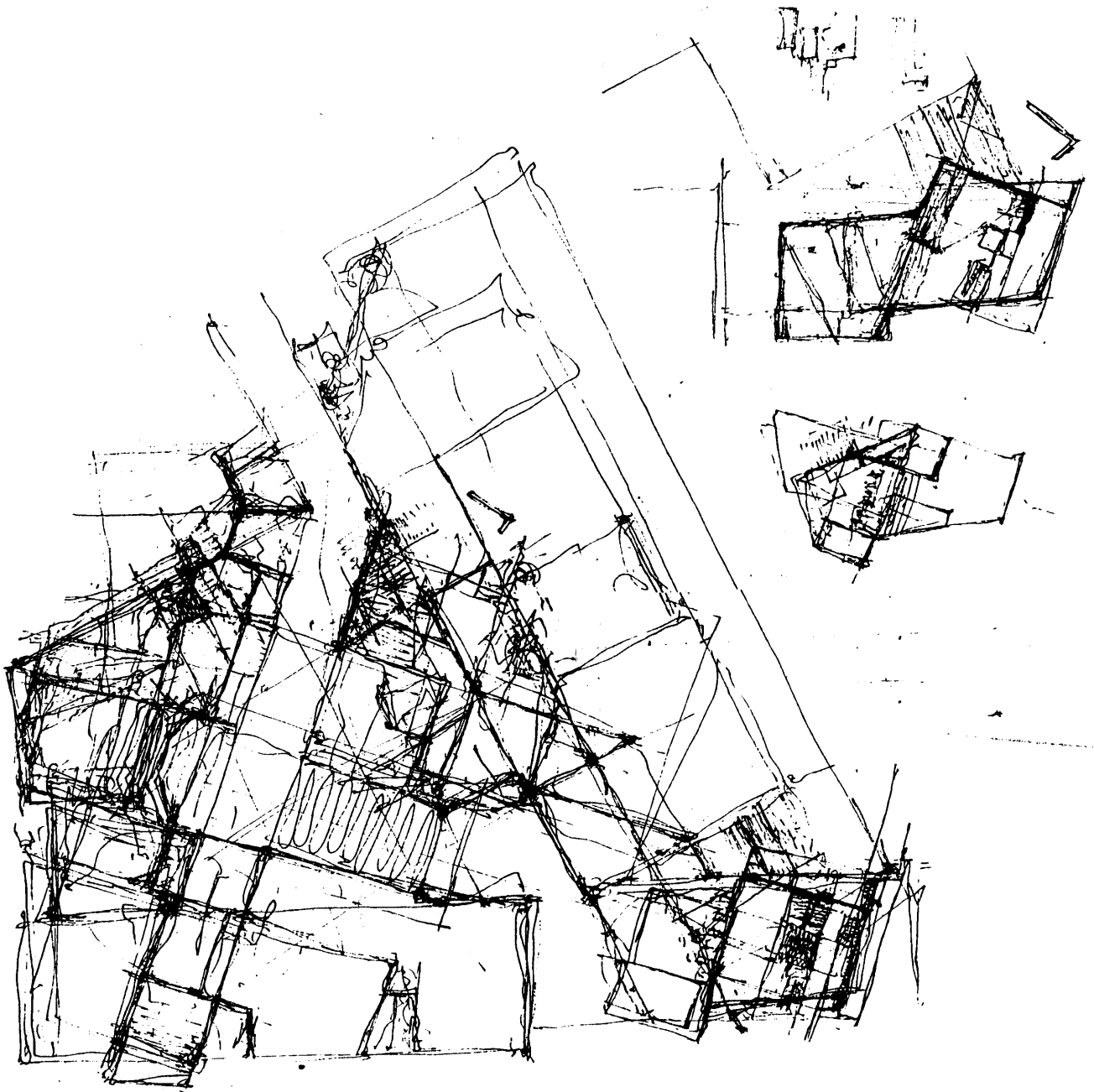
(D) Ideas: For example, streets vs, box, layers vs, stacks, patterns of affiliation, impact & meaning.

What follows is a written account of the design exploration and as such a loose translation of the sketches, diagrams, drawings and photographs that accompany this segment of the thesis. For this reason all the sections begin with the phrase, "I am

³⁶ "Public Streets for Public Use", p. 212

³⁷ "South Station Air Rights Development", P. 92

fig. 31 - First ideas on paper.



exploring . . .", and also for this reason, this thesis comes to an end with that same phrase. For, while this academic requirement is completed, the exploration of the design process is forever ongoing. (31-?)

4.2 Development of the structural grid

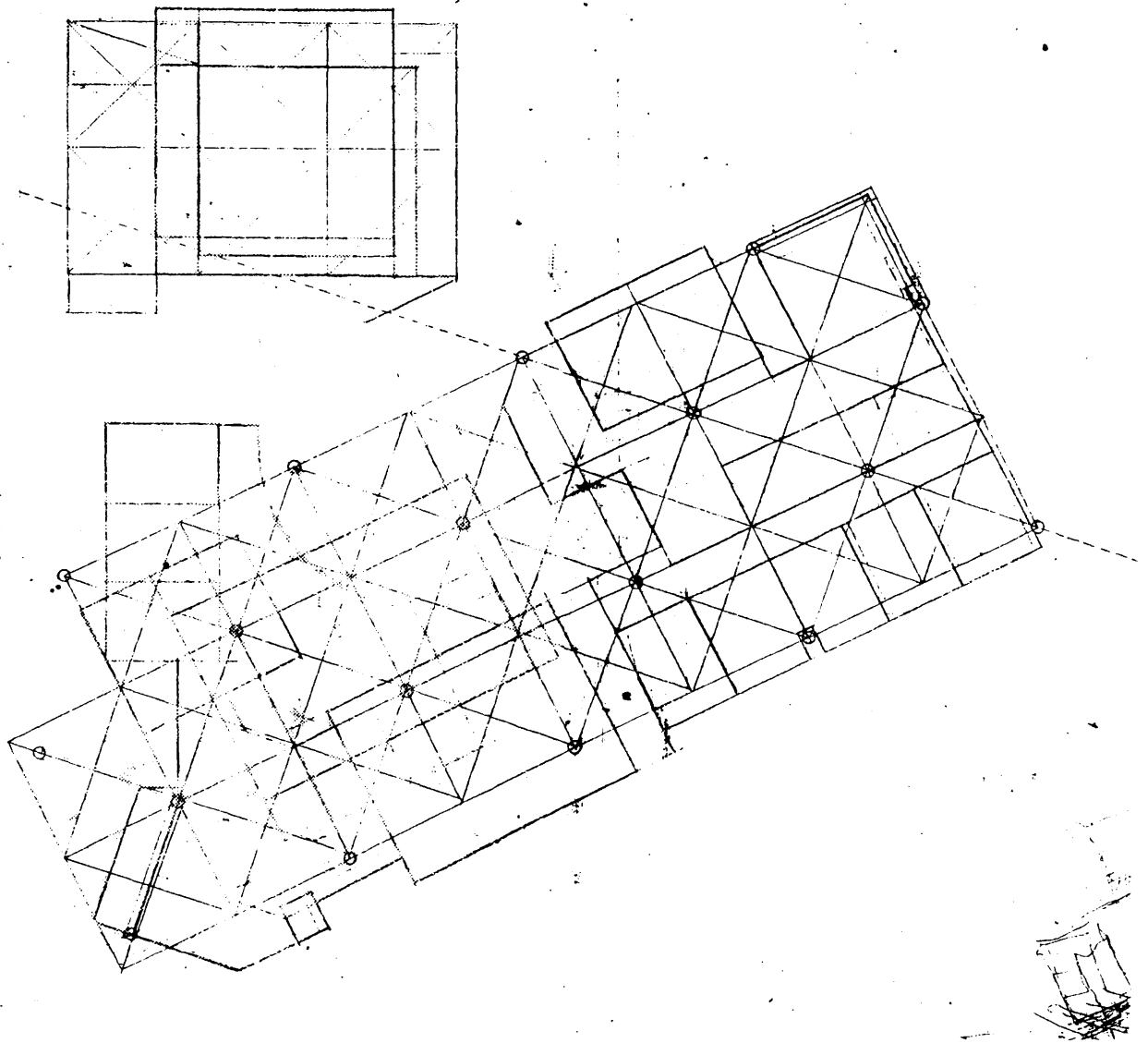
A first attempt to negotiate the forces on the site.

I am exploring the culmination of the three directional grid systems, as they exist respectively in the geometries of the Back Bay, the South End and the Massachusetts Turnpike. The site bordered by the right angle formed by Columbus Avenue and Chaners Place on the southeast, and, Clarendon and Stanhope Streets on the northwest, which are also at right angles, is idiosyncratic in that when all the streets meet a trapezium is formed instead of a regular rectangle. The direction of the structural grid which has to conform to the orientation of the Mass. Pike passing underneath, i.e. the flow of traffic, adds yet a third pair of directions which have to be dealt with and resolved at street level.

The primary directions to be observed, however, are those related to Columbus Avenue, since this is the major thoroughfare and this is the primary edge which has to be reinforced. The importance of Columbus Avenue as one of the major feeder roads into downtown Boston and the Financial District, has grown in the past few years, turning it into a major artery which requires street definition.

The secondary structural system can then deal accordingly with the Clarendon Street edge, as well as the Stanhope Street and Chaners Place edges. The last two streets will also be acting as service roads to the project. Where Chaners and Stanhope meet, the

fig. 32 - Incorporating existing directional forces in the project.



design of the building has to account and enhance the small plaza formed at their intersection.

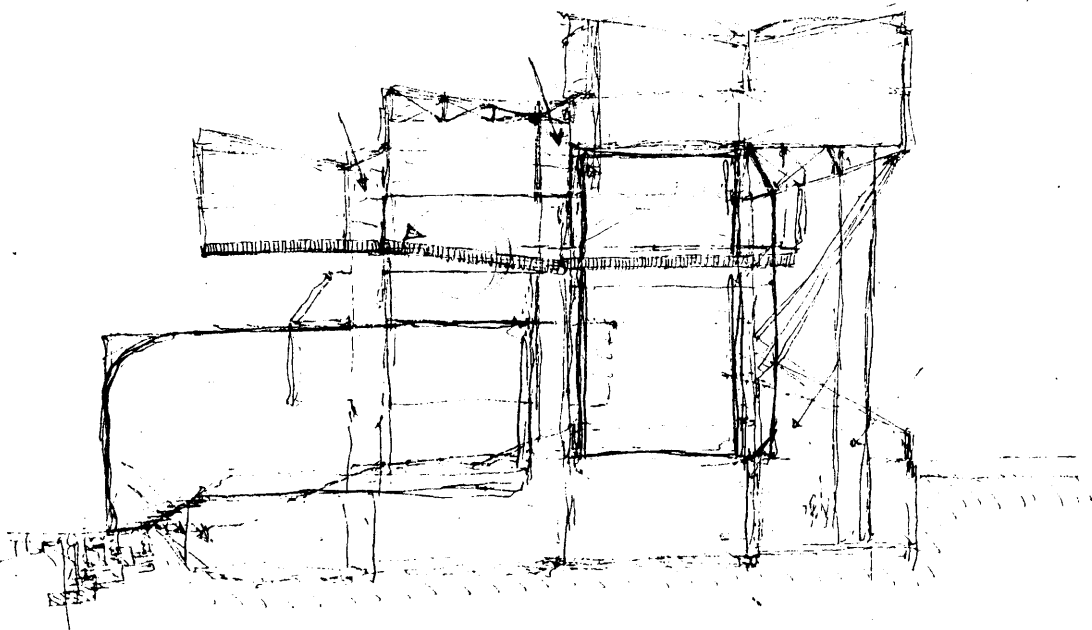
By spacing the grid columns at 64'-0", a square grid can be realized, offering lines of structure parallel not only to the Pike passing below, but also parallel to the Columbus Avenue and Chaners Place. thus enabling the formulation of more coherent edges. The design of the secondary structural system and the skin of the building should then be able to accommodate the programmatic and circulation requirements of the project.

4.3 Development of vertical circulation and building envelope above truss system

I am exploring the change to a less severe grid than the one of the primary structure, which would be in the area of 20-25 ft. spans. This dimension should allow for a lighter and thus more appropriate structure for the program above the truss system which will mainly include office space and related conference facilities. This secondary structure will conform to the pre-existing dimensions used in its neighboring buildings, as well as to massing appropriate to this part of Columbus Ave, in an attempt to establish a continuity with the southern edge of the Back Bay.

The Skin below the truss system will also be based on a light structure, with parts of it suspended from the major truss system raised on pilotis. Open and enclosed areas will attempt to interact and form a path and appropriate pauses on the way from the corner of Columbus Avenue and Clarendon Street to the southwest, where the "T" headhouse will

fig. 33 - Relationships between the different layers.



be located, to the small plaza on the northeast corner at the intersection of Stanhope Street and Chaners Place.

The smaller building at the northwest corner where Clarendon and Stanhope Streets meet, should maintain an overall dimensional relationship with its bigger counterpart , but its structure and eventually program should reflect the fact that it is located for the most part on firm ground and not above the transit system. Its massing should reinforce and strengthen the relationships of the surrounding building. It will play a major role in the shaping of the open areas, and it will help to give them definition.

4.4 The program and the parameters of its organization in the project

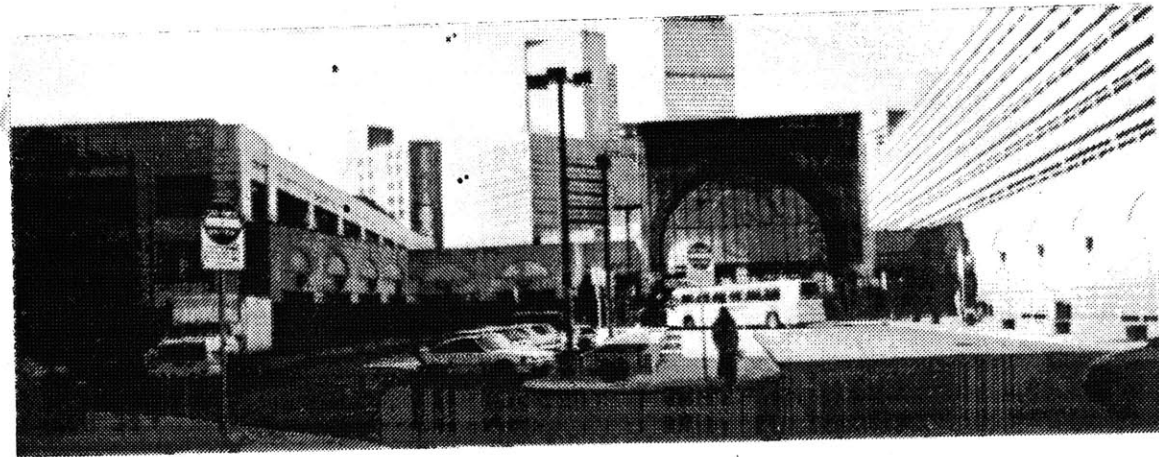
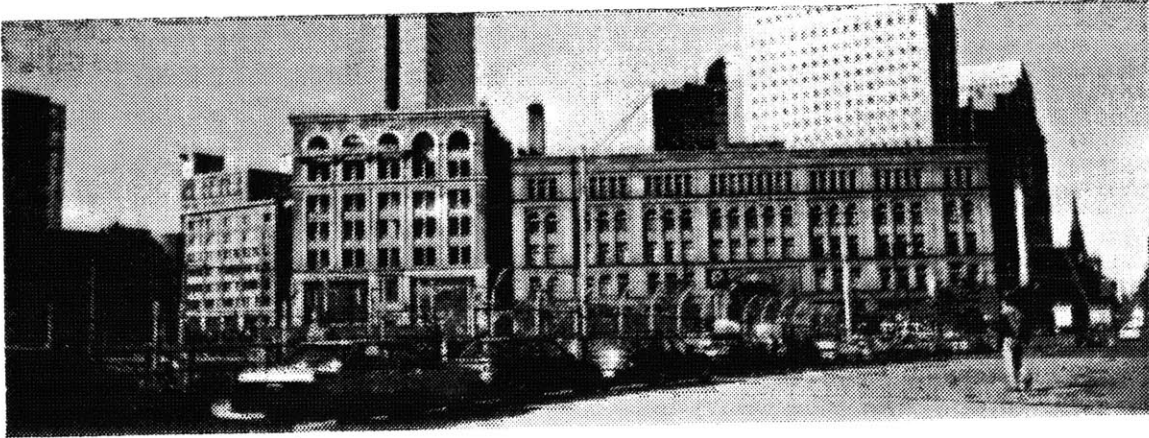
I am exploring the programmatic requirements that may be connected with a mixed use project in the commercial area of the Back Bay. In deciding this I am trying to relate to existing services already provided in that area, as well as supplementing them with possible services that may be housed in this proposal. These programmatic requirements have to be translated into built form which will help define public and private areas on the site. They will also help to define the extent of the project, possible connections with existing buildings, as well as the definition of public thoroughfares such as Columbus Avenue and Clarendon Street.

The articulation of the open space sandwiched between the two proposed buildings on this site, has to be carefully manipulated so as to form a number of distinct 'places' which are related to the forms and functions of the building envelope. These areas become increasingly more private in character as one moves from the 'loaded' area at

fig. 34 - View of the pike looking west.

fig. 35 - Approaching the site from the South End.

fig. 36 - Approaching the site on Columbus Avenue moving west.



the intersection of Columbus Avenue and Clarendon Street, to the 'subdued' area, and location of a small plaza at the intersection of Stanhope Street and Chaners Place. Whereas the building envelope in the first case is highly perforated and set up more freely with regard to the truss system canopy hovering above, the set up for the second case is more solid in its appearance, trying to define the small plaza it surrounds.

These articulations, are limited to the first two floors, beneath the truss system of the larger building. The structure set on top of this canopy, is more monolithic in its nature, arranged to support the continuities already set up by the buildings on the north side of Columbus Avenue.

4.5 A study of neighbors in the surrounding built fabric

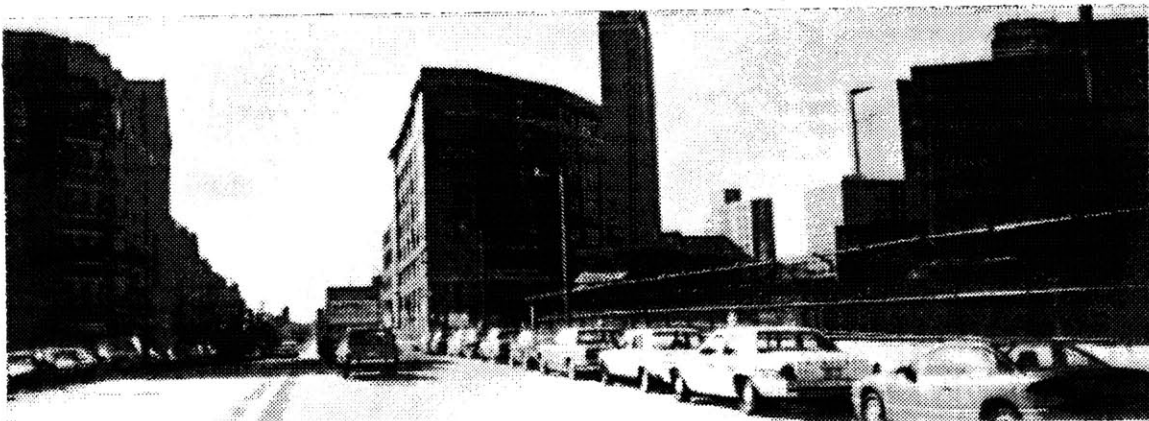
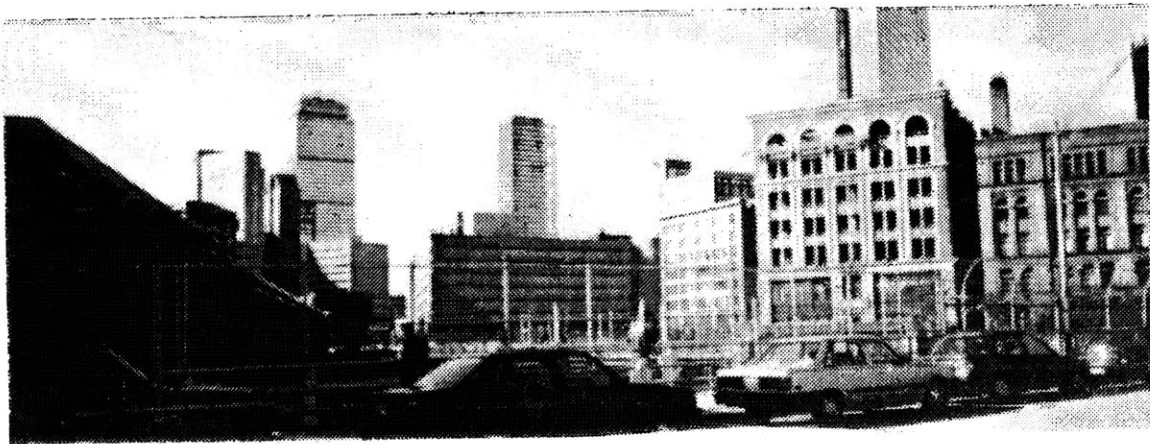
I am exploring the set of given information which can be found in the presence of the buildings surrounding the site. In order to attempt to re-establish the disrupted continuities along the length of Columbus Avenue and Clarendon Street, it is important to make use in ones studies, of the dimensional, material, proportional systems which are being utilized by ones "neighbors".

Whereas, on the Back Bay side of Columbus Avenue and Clarendon Streets, the facades, indicative of the dimensions of the structural systems used, are more in tune with the commercial activities and more public requirements of this part of Boston, the buildings on the South End side of the above mentioned streets, are typical of the housing blocks comprising the residential area typical of the South End.

fig. 37 - Typical fabric along Columbus Avenue towards the Downtown.

fig. 38 - The Back Bay / South End Station.

fig. 39 - Entering the South End along Clarendon Street



Materials such as steel, glass, concrete and facings of various types of masonry, are juxtaposed against the more intimate scale of brick construction. Although the site is definitely in the commercial and business realm of the area, care has to be taken in the massing and construction of the development, to allow for a smooth transition from one area to the other, as well as along the seam represented by the thoroughfare of Columbus Avenue.

4.6 Assimilation in the urban framework

I am exploring the urban framework inside which this project will interact. Once the decision is being made not to conform to the rules and methods of construction that characterize the buildings adjacent to the site, it is important to find other ways of remaining consistent within the confines of the project.

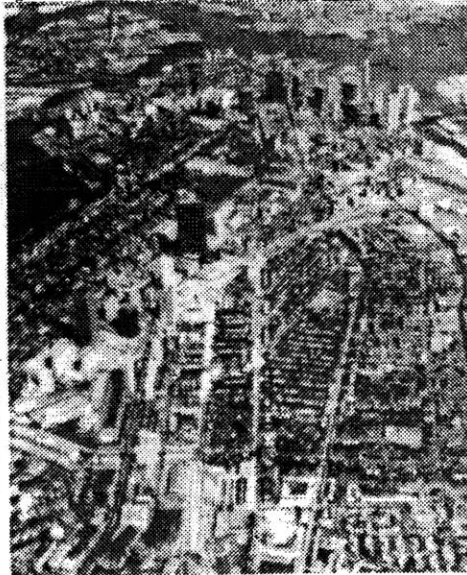
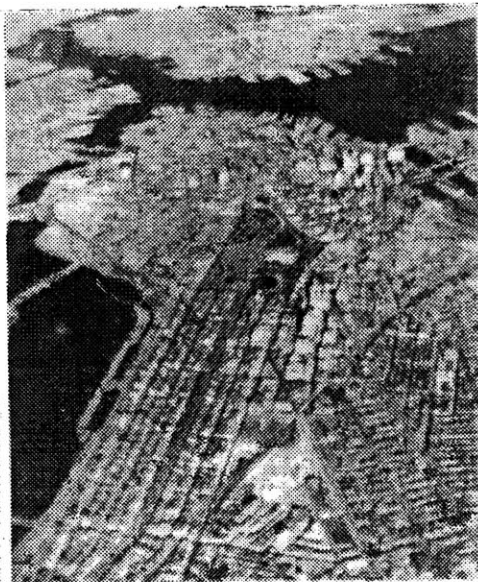
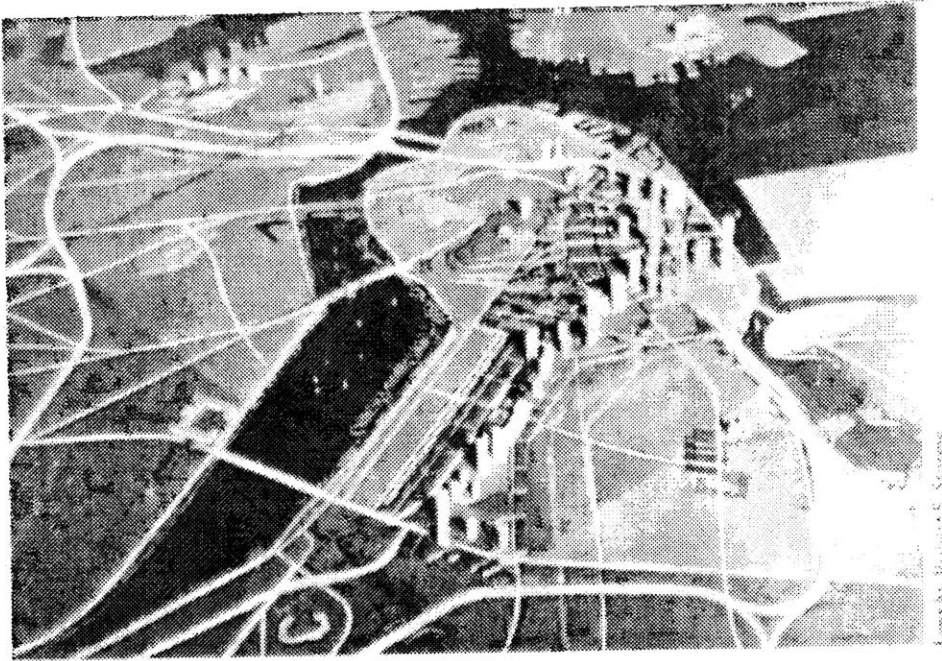
The design will attempt to set up its own parameters by introducing an understanding of the different sets of dimensions of the surrounding fabric, that are going to be studied and transformed to serve the requirements of the current project, and, not copied or mimicked therein.

Of equal importance will be the representation of individual elements in the design, which include the subway headhouse, entry to the building and the office complex of the upper floors and the pedestrian path leading to "Channers' Place Plaza" from Clarendon Street and its relation to functions and activities in the two buildings responsible for its definition. This last factor is of particular importance as it will enhance the reading of the relationship between the proposed buildings and their surroundings.

fig. 40 - Architect's plan for Boston. Committee on Civic Design, BSA, 1961.

fig. 41 - An aerial view in the direction of the future "Tall Spine", 1959.

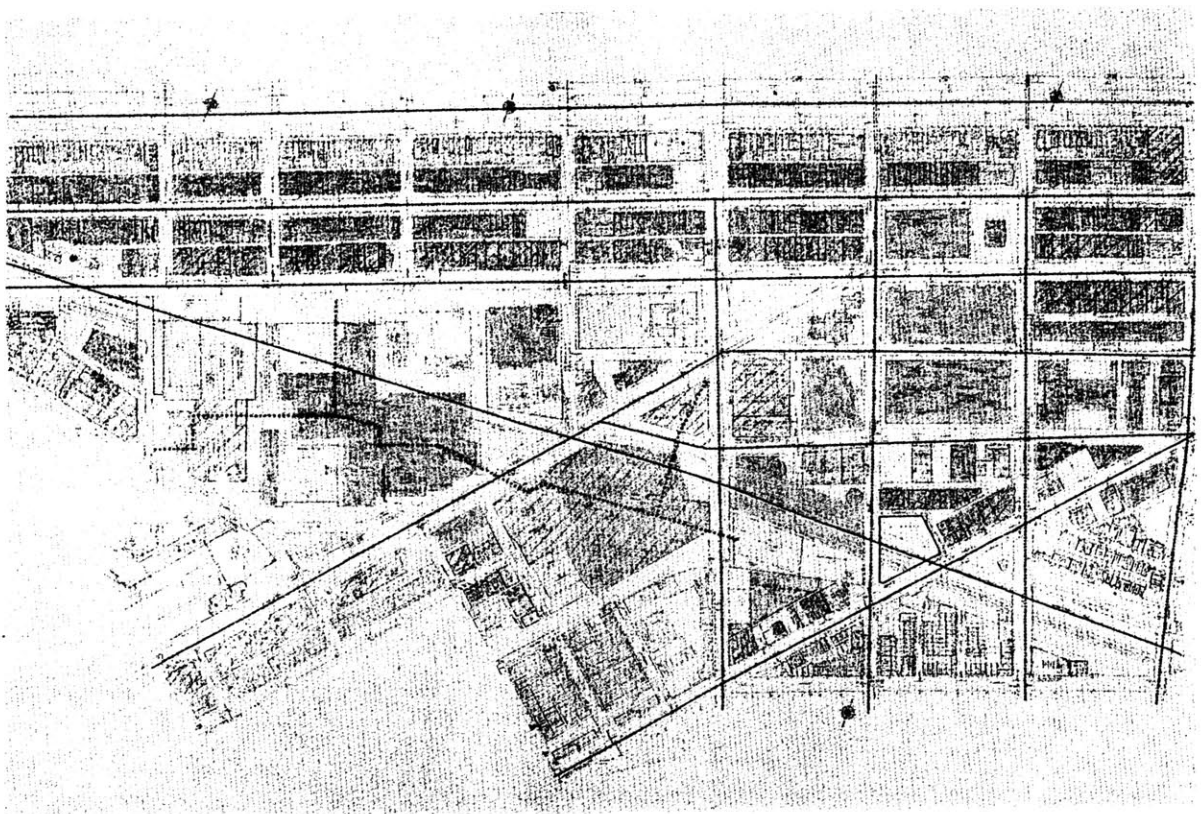
fig. 42 - An aerial view of the "Tall Spine" after 25 years of building, 1984.



4.7 Further Development

I am exploring . . .

38



³⁸ Sunborn Map showing Site Analysis during pre-thesis.

fig. 43-46 - Photographs showing sketch models during pre-thesis

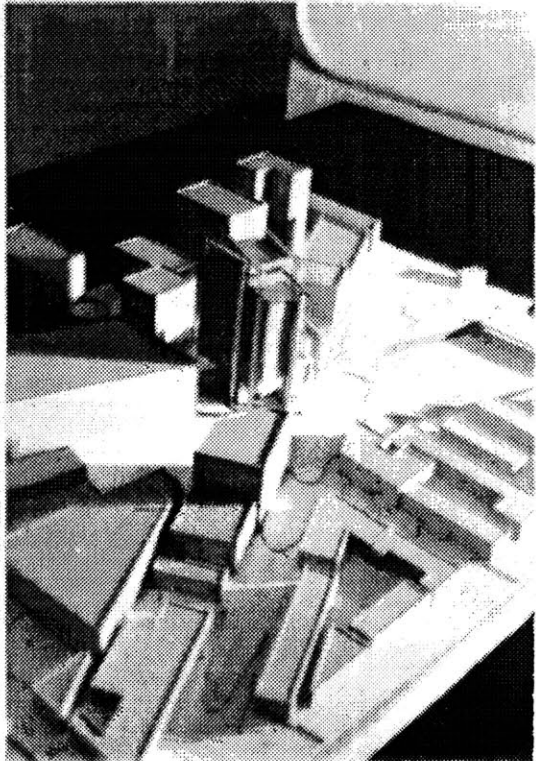
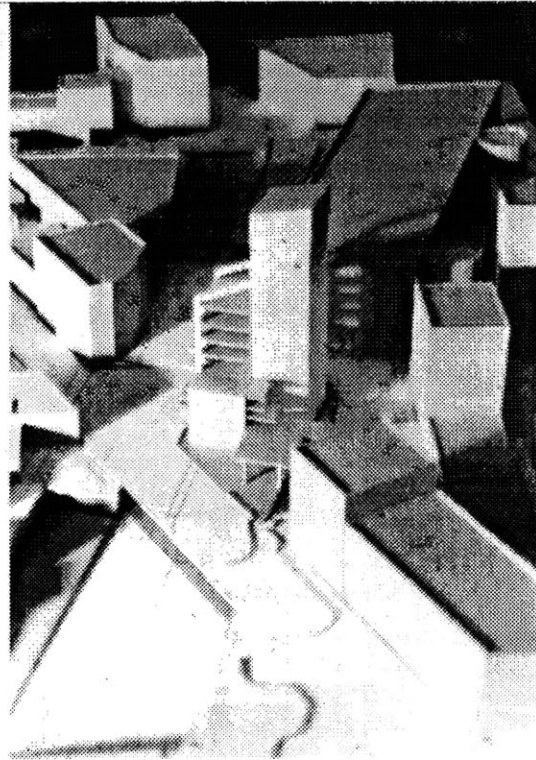
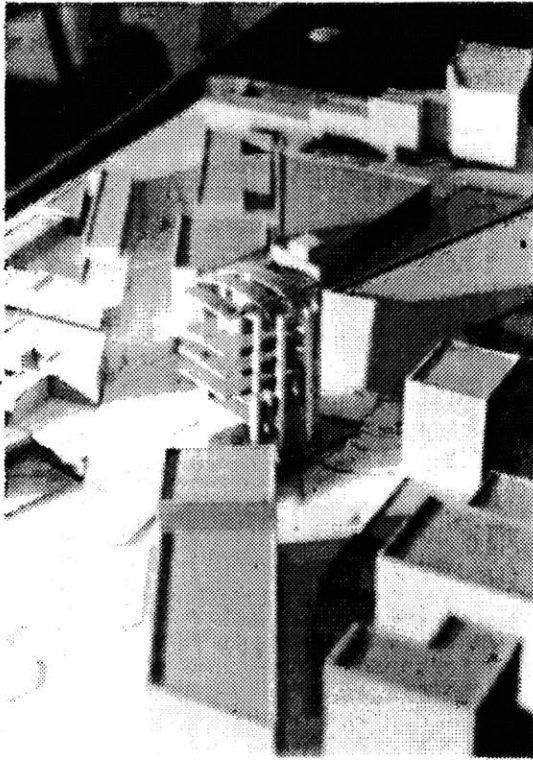


fig. 47 - Aerial photograph showing the site area on the upper half and part of the South End fabric on the lower half.



fig. 48, 49 - Photographs showing concept model in the site.

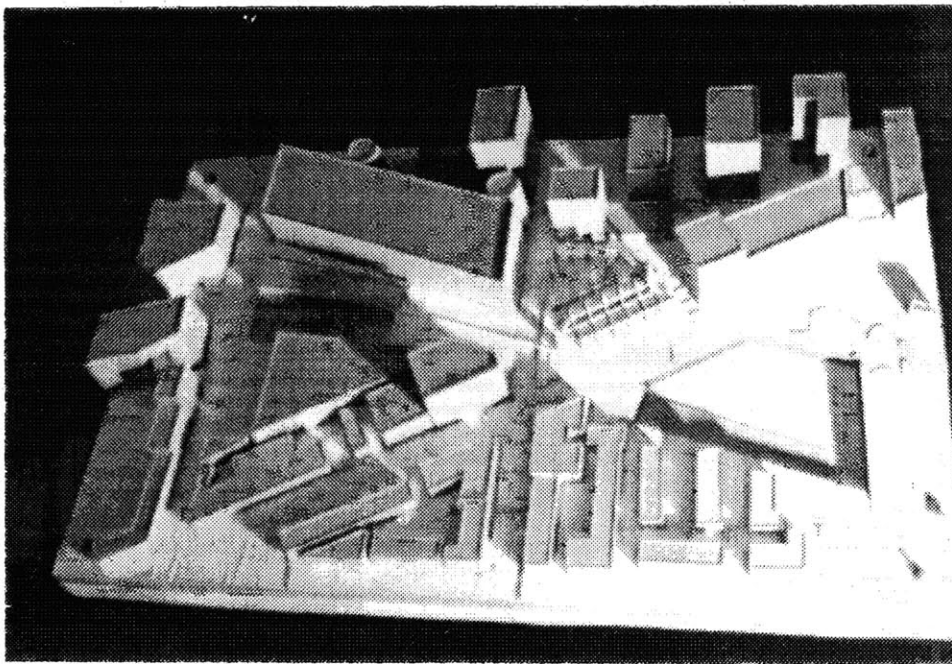
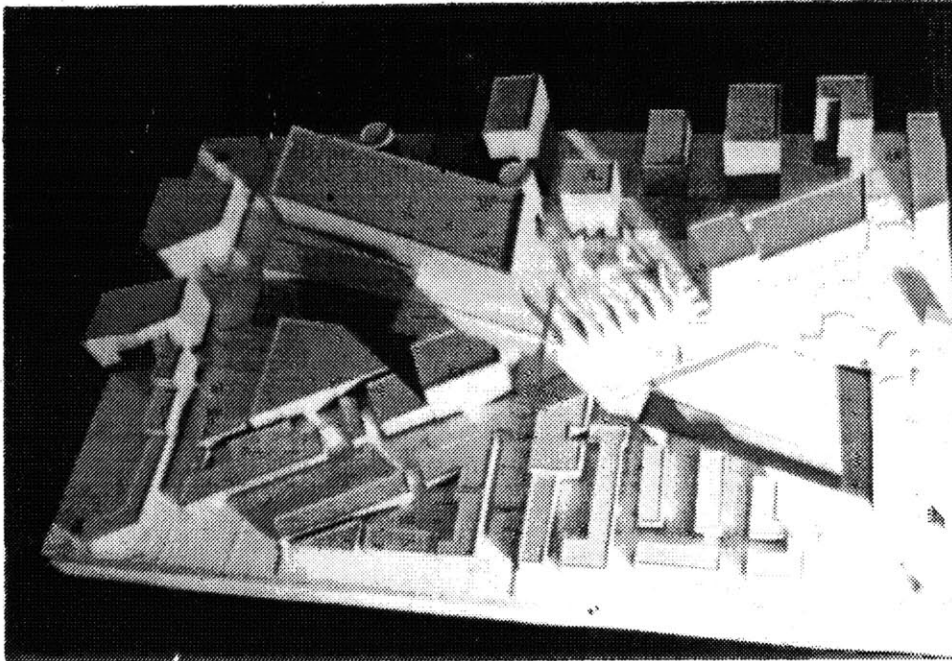


fig. 50-53 - Photographs showing structural layout conforming to the Mass Pike and existing site geometries.

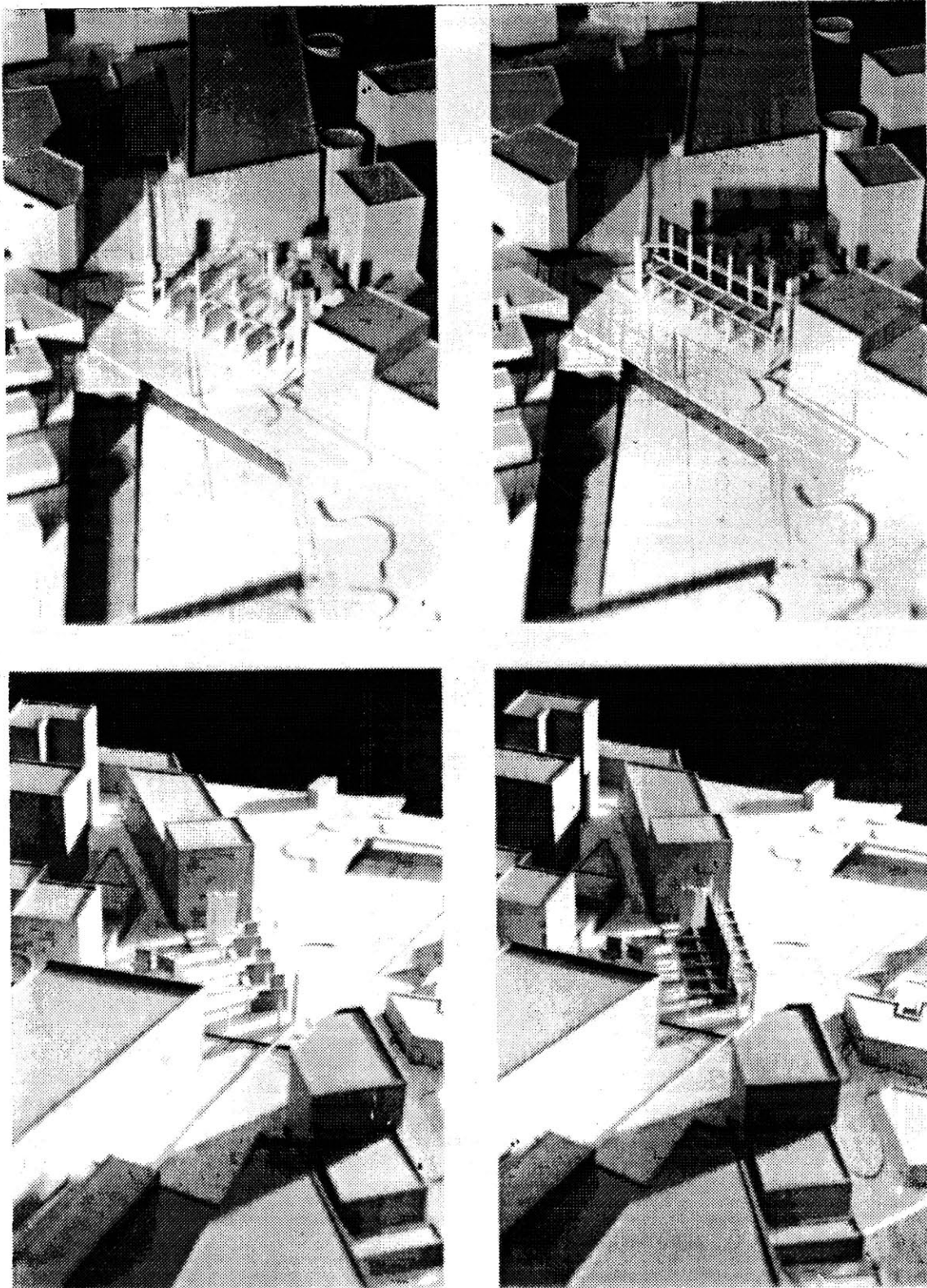


fig. 54, 55 - Project at Content Review

fig. 54 - View from the Back Bay / South End Station.

fig. 55 - View from Columbus Avenue moving east.

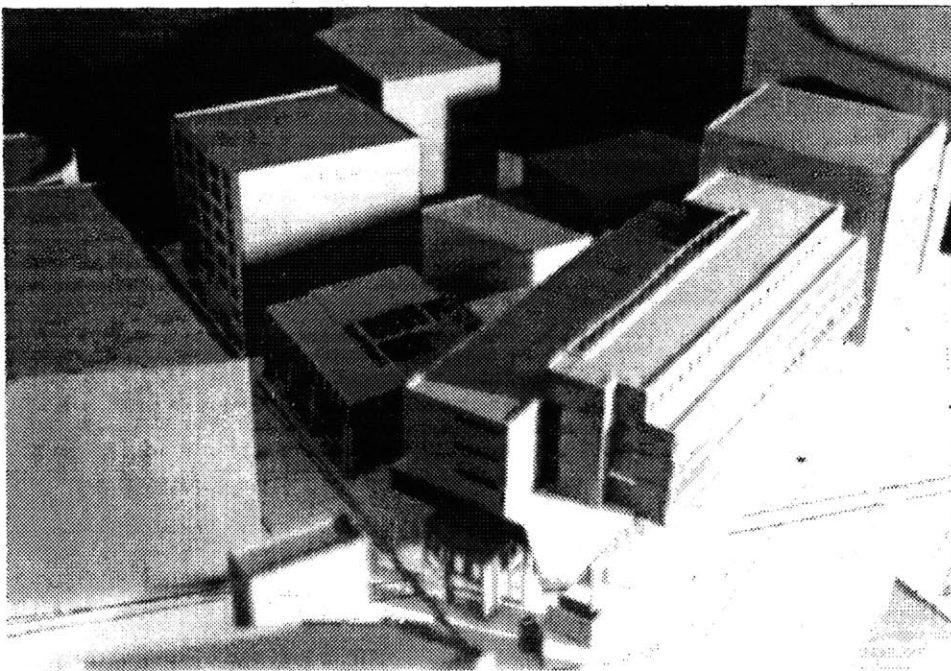
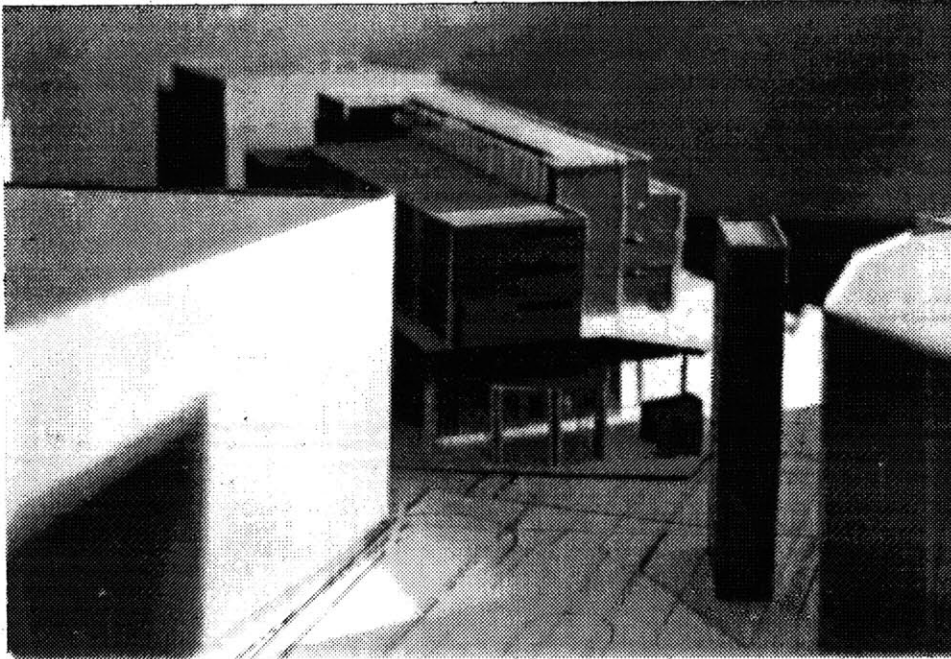


fig. 56-64 - Project at Final Review.

- fig. 56 - First Floor Plan:
- | | |
|--------------|--------------------|
| 1 Lobby | 5 Service + Supply |
| 2 Shop | 6 Terrace |
| 3 Food Court | 7 Subway Headhouse |
| 4 Restroom | |

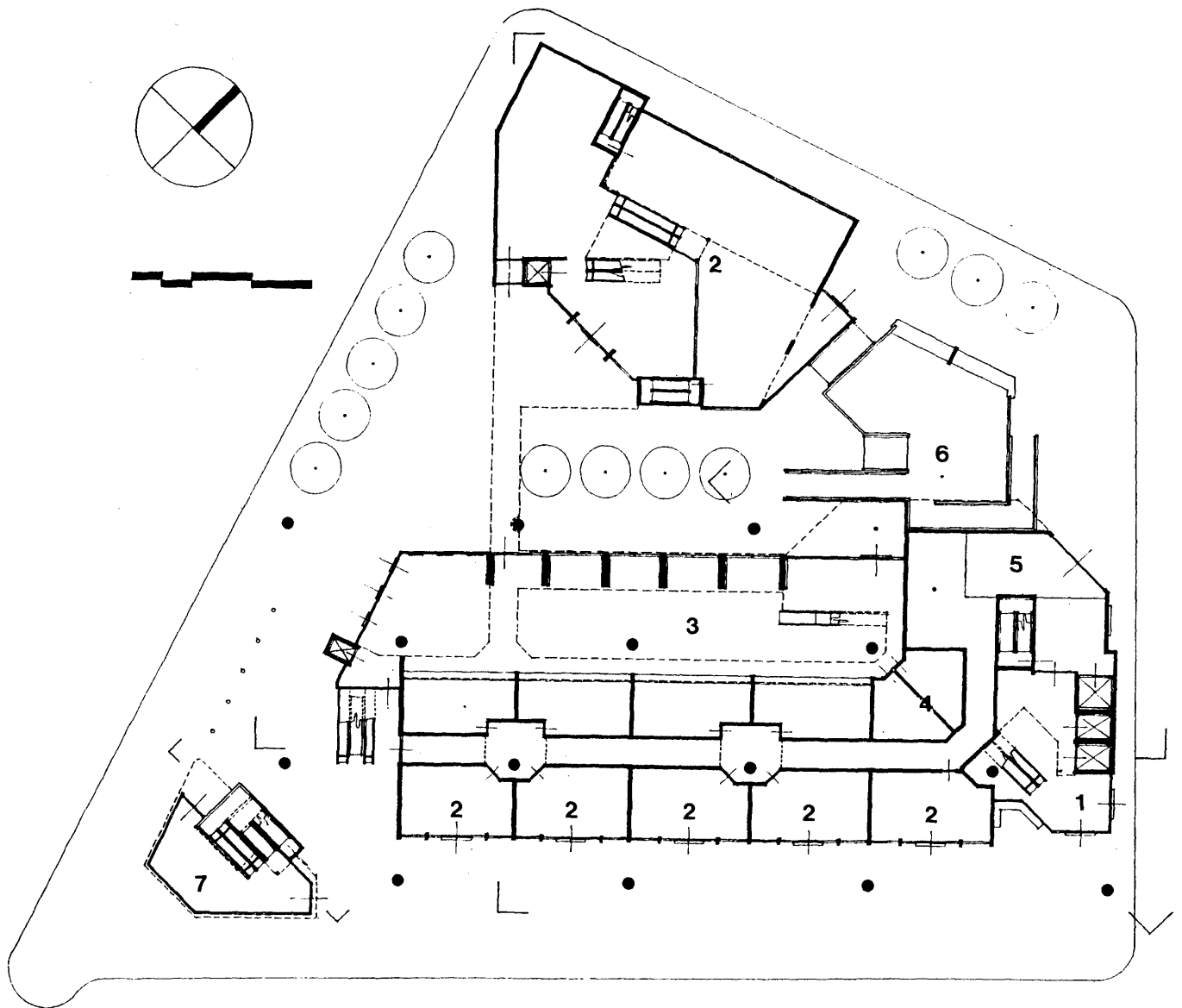


fig. 57 - Second Floor Plan: 1 Shop

2 Cafe

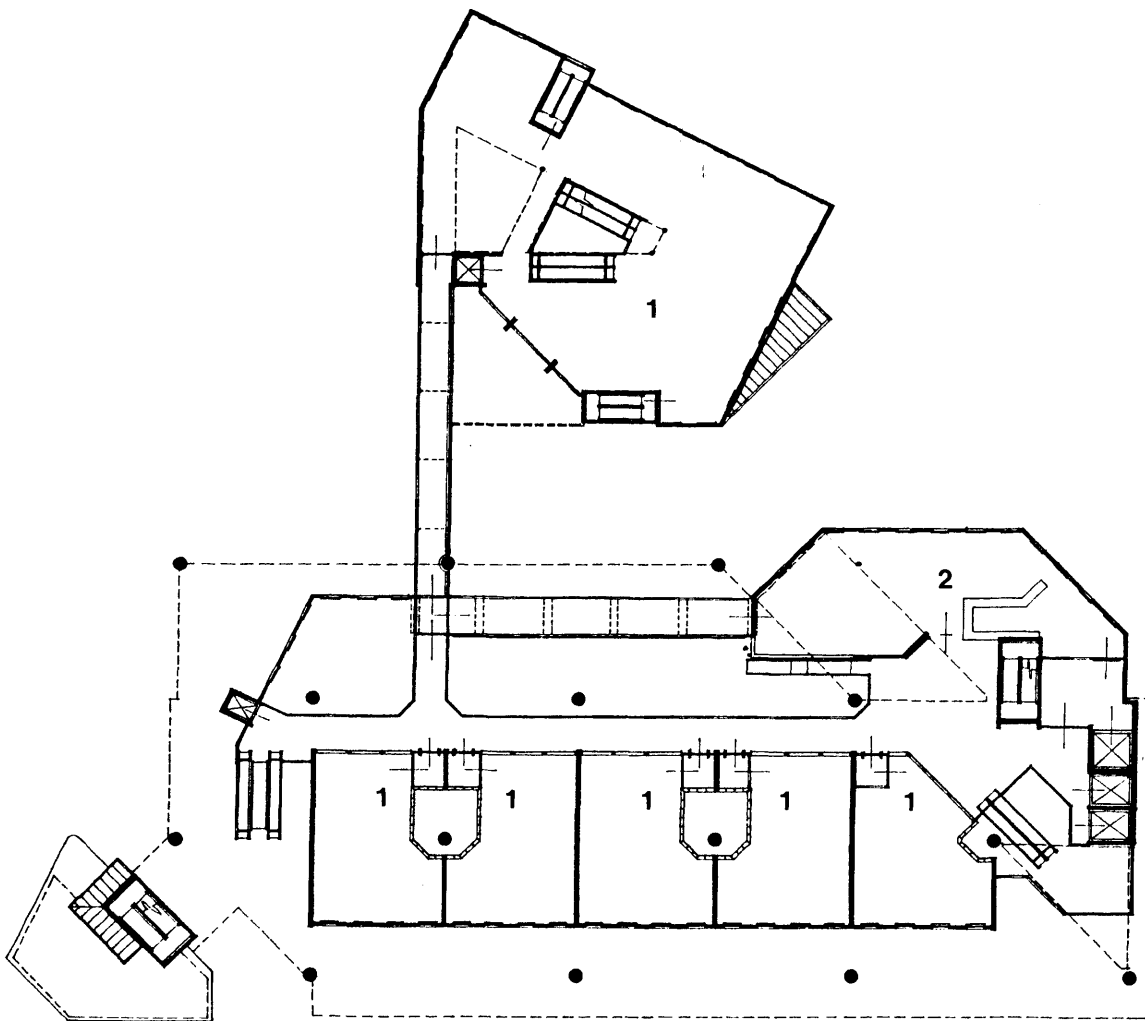


fig. 58 - Longitudinal Section looking north.

fig. 59 - Upper Floor Plan (typical): 1 Office Area

2 Lounge + Kitchenette

3 Restroom

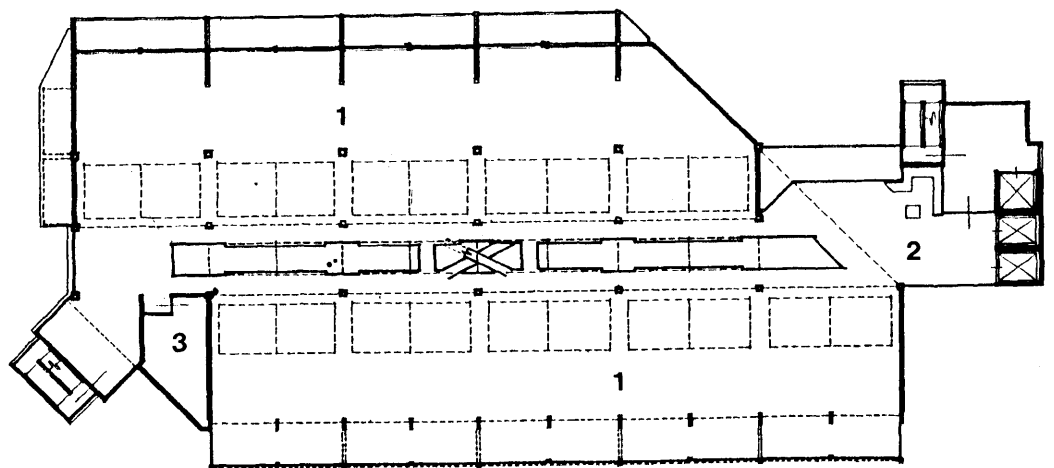
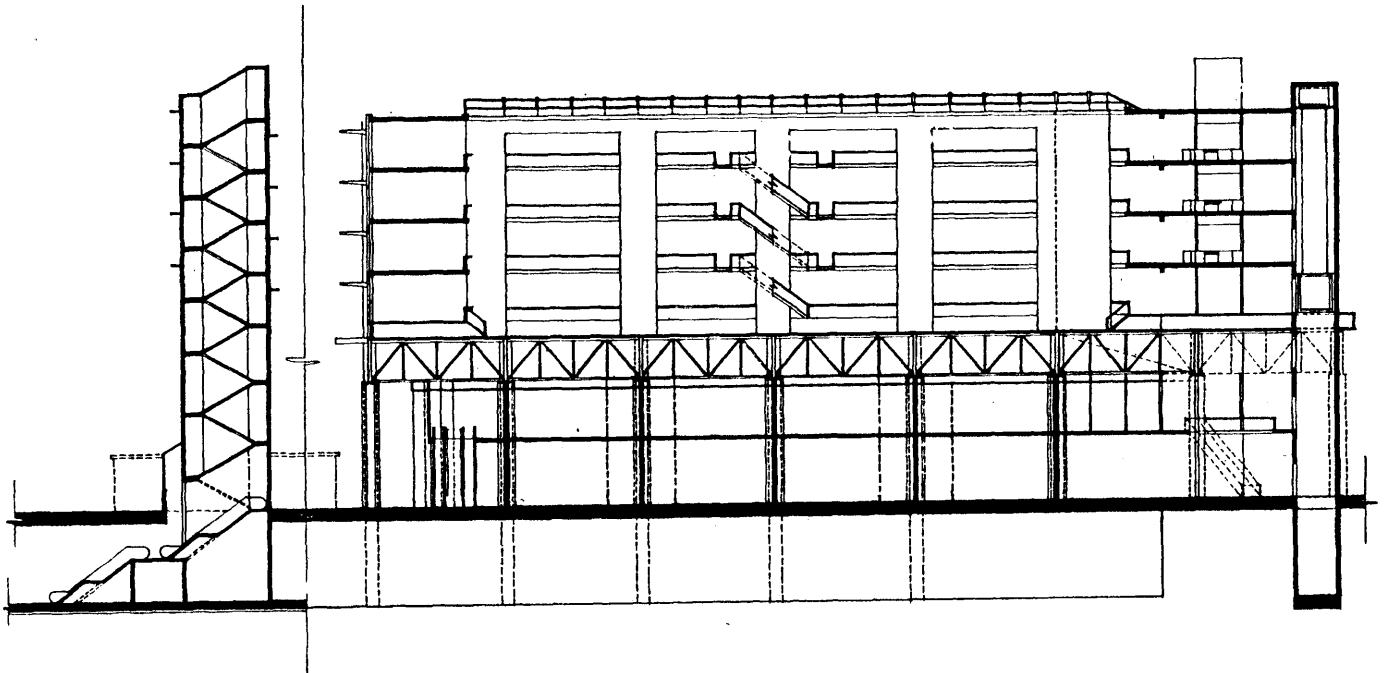


fig. 60 - Cross Section looking east.

fig. 61 - Oblique Section looking northeast.

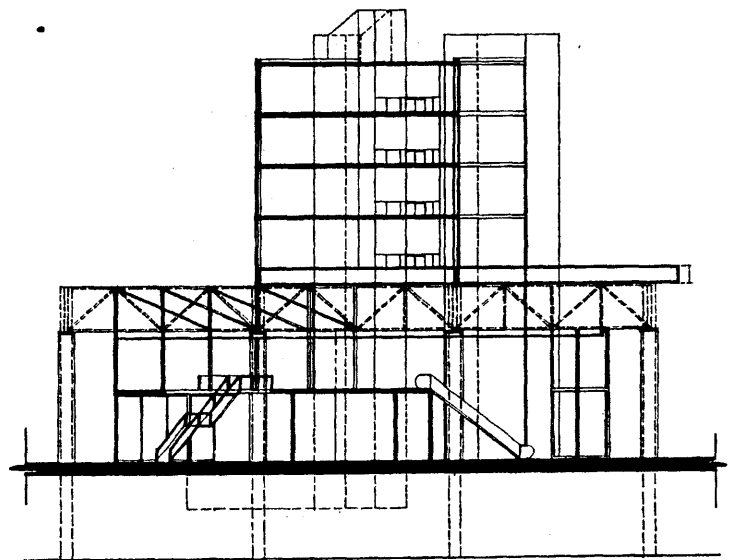
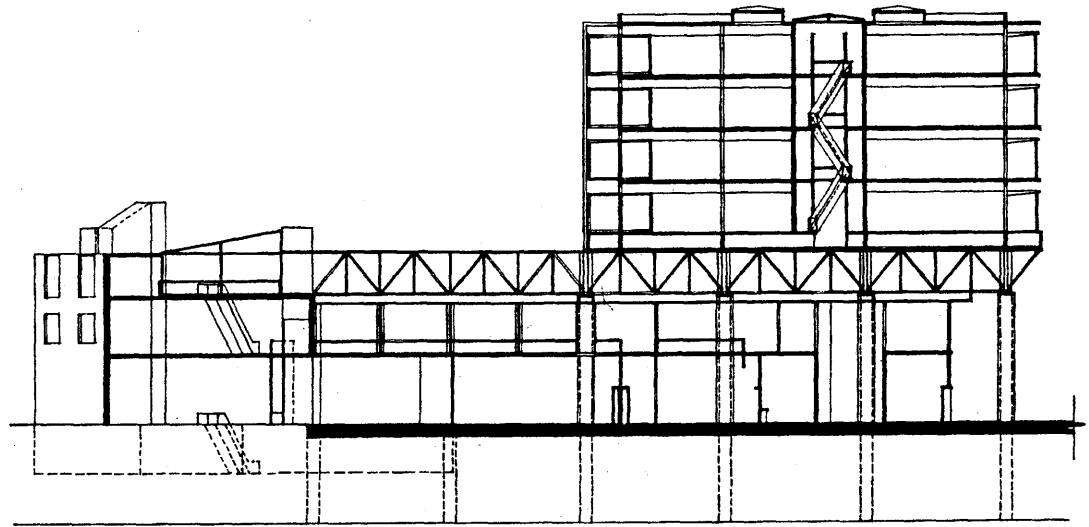


fig. 62-64

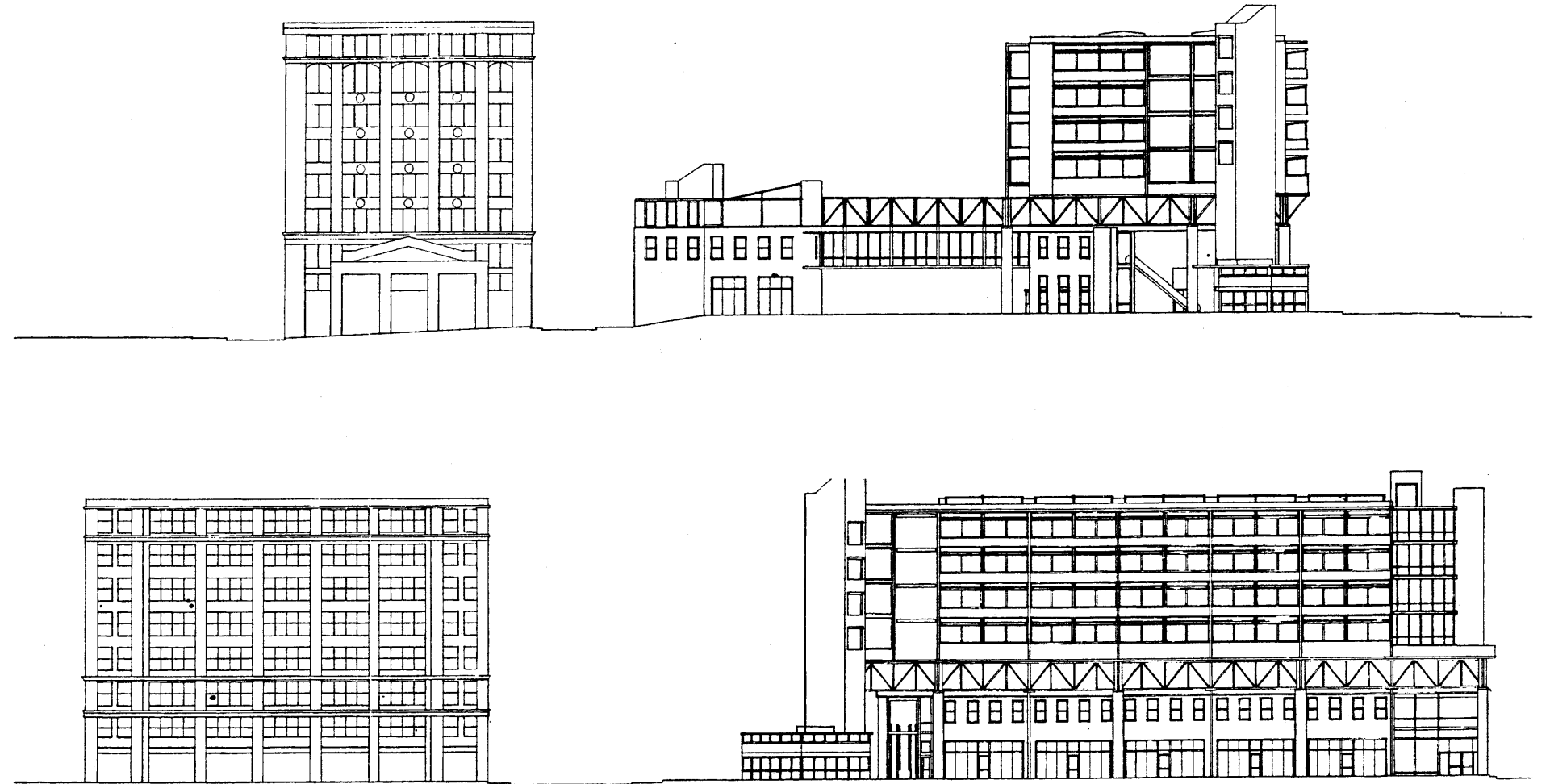


fig. 62 - Elevation along Clarendon Street.

fig. 63 - Elevation along Columbus Avenue.

fig. 64 - Axonometric showing structural bay.

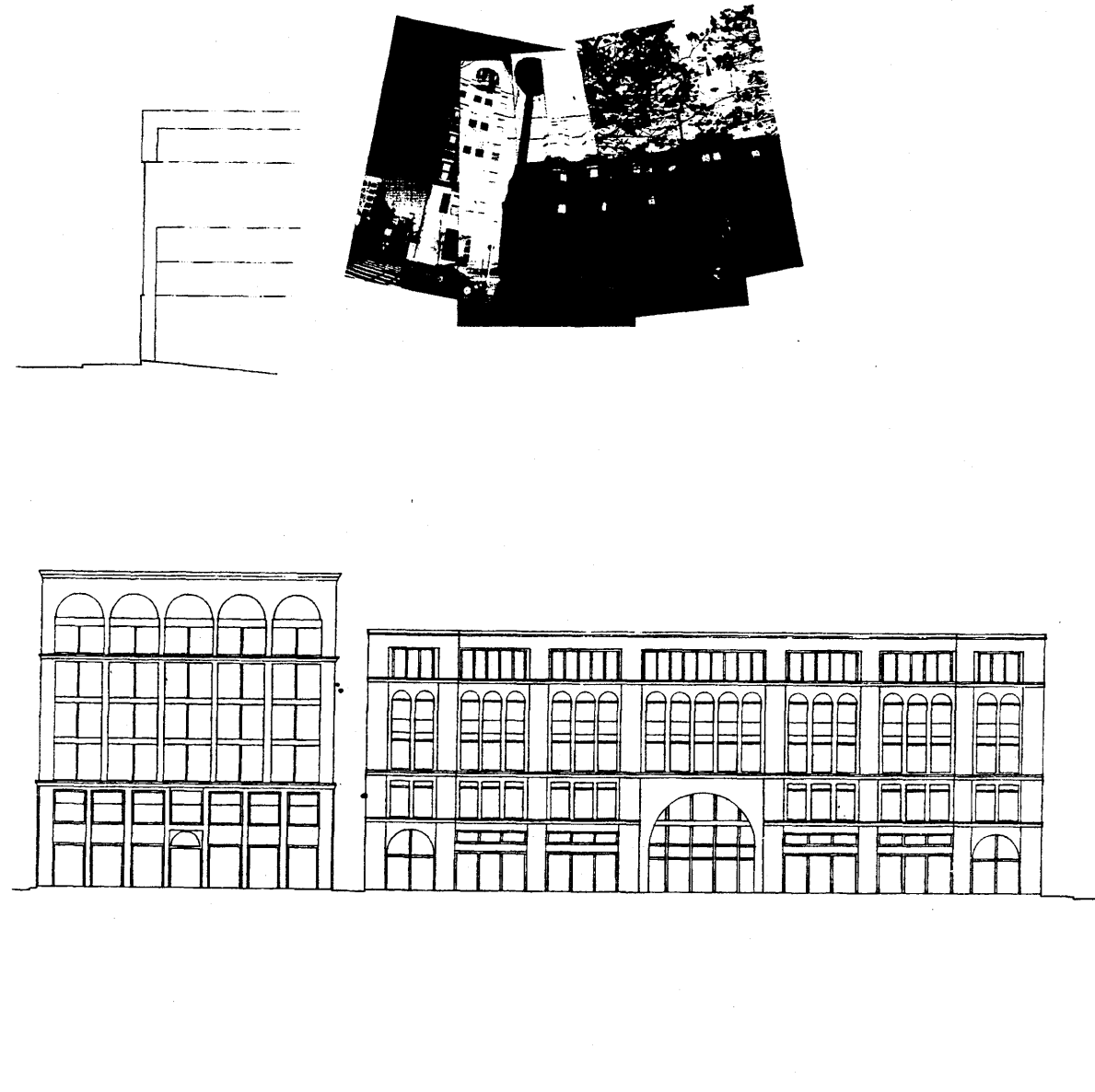


fig. 65-68

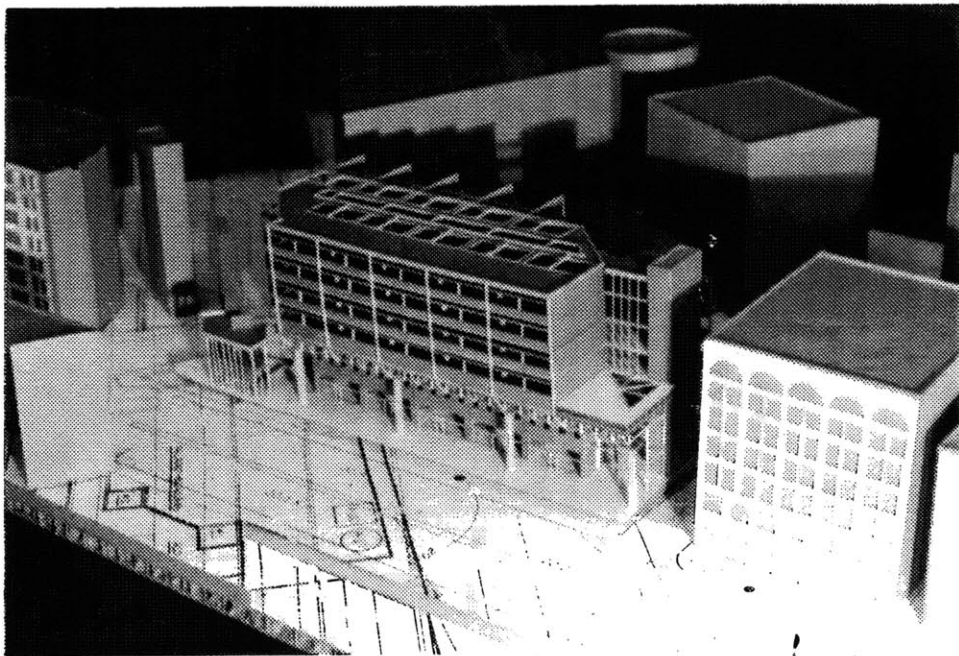
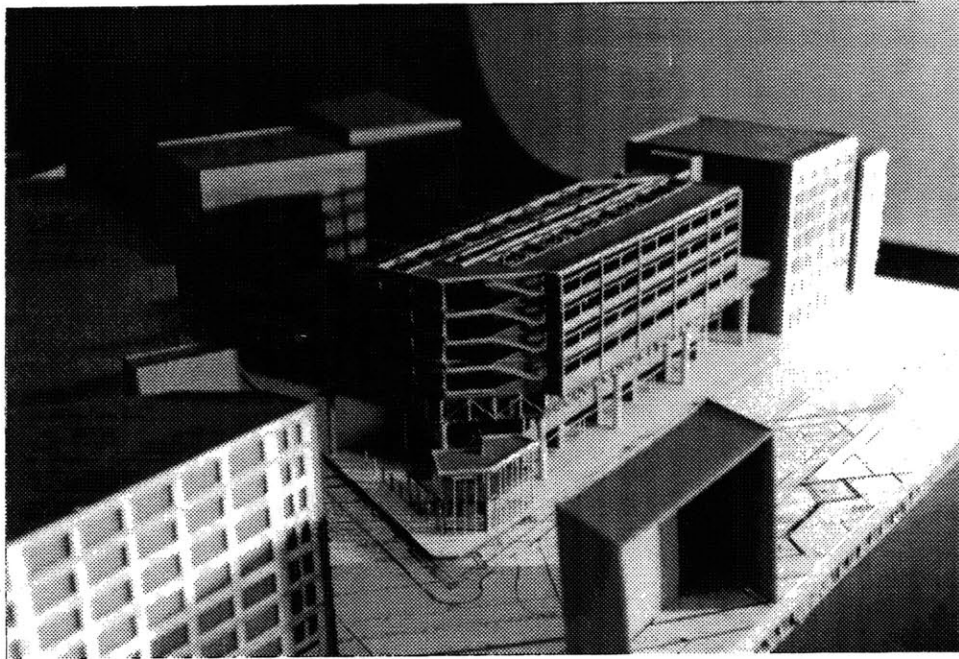
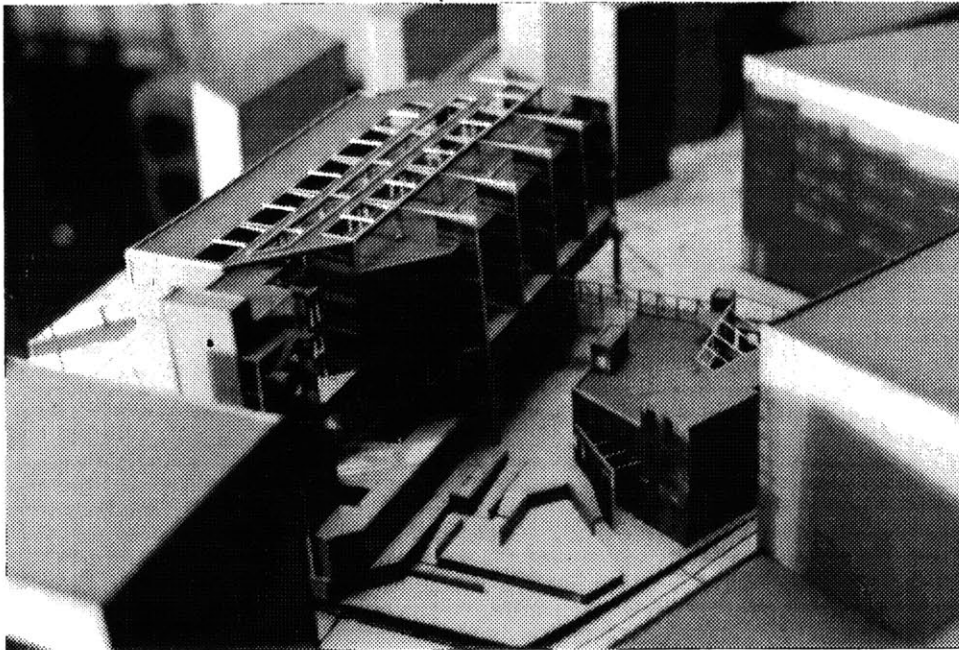
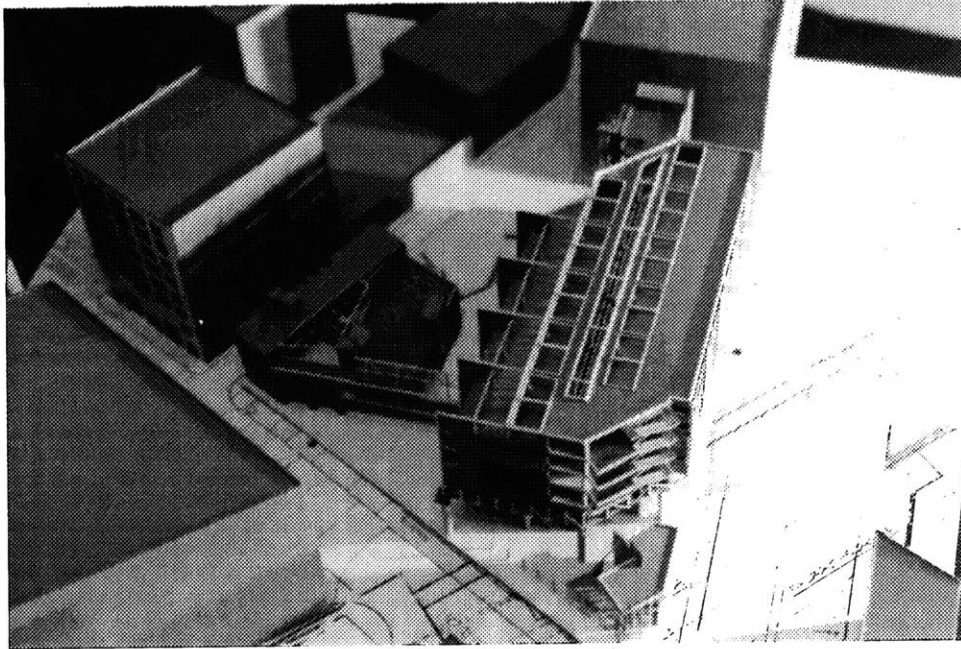


fig. 65-68 - Project (current)



[illegible]

5 INDEX

5.1 Figure Credits

fig. 1 - Kostof, Spiro "The City Shaped" Thames and Hudson, 1992, p. 46.

fig. 2, 3, 4, 5, 6, 7, 8, 9, 12 - Whitehill, Walter Muir "Boston: A Topographical History" The Belknap Press of Harvard University Press, 1968, pp. 9, 75, 99, 85, 158, 159, 181, 192, 190 respectively.

fig. 10 - U.L.I. "Mixed Use Development Handbook" The Urban Land Institute, 1987, p. 262.

fig. 17, 18 - Lynch, Kevin "The Image of the City" The Technology Press & Harvard University Press, 1960, pp. 18, 24 respectively.

fig. 23, 24 - Droege, Peter "South Station Air Rights Development" MIT Competition Studio / Architectural Design Workshop, Spring 1990, pp. 13, 65 respectively.

fig. 25, 26, 27, 28 - B.S.A. "Design Issues: Mass Pike Air-Rights Focus Group" Boston Society of Architects, 1989, pp. 8, 9, 24, 26 respectively.

fig. 34, 35, 36, 37, 38, 39 - Photographs taken by Prof. Imre Halasz, Fall 1995

fig. 40, 41, 42 - Krieger, Alex "Past Futures: Two centuries of imaging Boston" Harvard University Graduate School of Design, 1985, pp. 70, 71 respectively.

* All other figures presented in this thesis and not included in the list above are the work of the author.

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